THE FIFTY-THIRD YEAR.

Companion to the Almanac;

OR,

YEAR-BOOK

OF

GENERAL INFORMATION

FOR

1880.

PART I.

GENERAL INFORMATION ON SUBJECTS OF CURRENCY, GEOGRAPHY, COLONIZATION, SOCIAL IMPROVEMENT, EDUCATION OF THE DEAF AND DUMB, PROGRESS OF LONDON, THE LONDON SCHOOL BOARD, RECENT SCIENTIFIC INVENTIONS.

PART II.

ARCHITECTURE AND PUBLIC WORKS, SCIENCE, PAINTING, MUSIC, PHILANTHROPY, LEGISLATION, STATISTICS, AND CHRONICLE OF 1878-79.

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CONTENTS.

PART I.

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	Page
The Mint: its System, Operations, and Locality. By G. DODD	5
Cyprus. By J. R. ROYLE.	24
The Temperance Refreshment House Movement. By J. J. MANLEY	38
South Africa. By JOHN CROWDY	59
The Heliograph. By H. BADEN PRITCHARD	82
The Education of the Deaf and Dumb. By W. E. A. AXON, M.R.S.L., F.S.S.	88
The Rating of Chronometers. By CHARLES STUART MURRAY	106
The Progress of London. By CHARLES MACKESON, F.S.S.	117
The London School Board	138

PART II.

ARCHITECTURE AND PUBLIC WORKS, SCIENCE, PAINTING, MUSIC, PHILANTHROPY, LEGISLATION, STATISTICS, CHRONICLE AND NECROLOGY OF 1878–79.

Architecture	152
The Exhibitions of Pictures in 1879	171
Science of the Year 1878–79. By J. F. ISELIN, M.A.	
1. Astronomy	184
2. Geography	188
3. Chemistry	196
4. Geology and Palæontology	200
5. Physics	202
6. Biology	206
The Music of the Year 1879	208
Metropolitan Philanthropy in 1879	217
Table of all the Public General Acts of Parliament for 1879	223

Page

Abstracts of Important Acts of Parliament:—
1. Church and Education:
University Education, Ireland 232
2. Army and Navy:
Army Discipline and Regulation . . . 233
Registration of Births, Deaths, and Marriages (Army) 233
3. Finance and Taxation:
House of Commons Costs Taxation . . . 234
Limited Liability Companies 234
4. Law and Justice:
Spring Assizes 236
Friendly Societies 237
Bankers' Books Evidence 237
Charges for Paupers' Maintenance . . . 238
Metropolitan and Suburban Racecourses . . 239
A Public Prosecutor 239
Shipping Casualties Investigations . . . 240
5. Local Government:
Public Health (Interments) 241
District Auditors 243
Assessed Rates 245
Artizans and Labourers' Dwellings . . . 245
Metropolitan Board of Works, Indemnity for Expenditure on Water Supply Bills . . 247
Metropolitan Board of Works, Extension of Powers for raising Money 247
6. Miscellaneous:
Habitual Drunkards 248
Sale of Food and Drugs Act 250

Abstracts of Parliamentary and other Official Documents:
1. Finance, Taxation, and Currency 251
2. General Commerce and Navigation . . . 259
3. Trade and Agriculture 266
4. Population, Public Employment, and Vital Statistics 271
5. Crime, Pauperism, and Accidents 273
6. Education, Science, and Art 276
7. Emigration 277
8. The Post Office 278
9. Miscellaneous 279

Chronicle of Events and Occurrences 1878–79 280

Necrological Table 1878–79 285

INDEX 288

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THE MINT: ITS SYSTEM, OPERATIONS, AND LOCALITY.

ALL civilized countries, and most of those that have reached semi-civilization, coin metallic money for the purposes of every-day trade as the most convenient medium of exchange in buying and selling. Several of these possess *mints* or coin-manufactories belonging to and worked by the State; while others contract with private firms or individuals to make the coins for them at a definite charge. Thus, in Germany, France, Russia, Denmark, Spain, Switzerland, and the United States the Governments mostly make their own coin; in Belgium, Italy, and Holland the coins are made by contract; while in England the gold and silver coins are made wholly at the Royal Mint, but those of bronze partly by contract with private firms at Birmingham. It is found, on impartial comparison, that coins produced by the State are usually superior in delicacy and finish to those made by contract.

European countries also differ in the *quality* of their gold and silver coins. The precious metals, when absolutely pure, are too soft to bear the wear and tear to which coins are necessarily exposed; they require a small addition of alloy, usually copper, to harden them. England, as will be explained more fully in a later page, adopts a ratio of 11 pure gold to 1 of alloy; and this ratio is also adopted by Russia, Portugal, Turkey, and Brazil; whereas France, Belgium, Switzerland, Italy, Spain, Greece, Holland, and the United States prefer a ratio of 9 to 1. This difference raises no difficulty in exchanging the gold coins of one country for those of another, seeing that all the coins are valued according to the amount of pure gold they contain. Some particular kinds of foreign coin have standards varying from 87 to 98 per cent. of pure gold, that of England being

about 91·7. As regards silver, the standard differs much more widely than in gold; some Dutch coins have as much as 95 per cent. silver to 5 of alloy, whereas the poorest denomination of Austrian coin has only 40 of silver to 60 of alloy. The English standard is 37 to 3, or 92½ per cent. France and some other countries adopt the same ratio for silver as for gold coins, 90 per cent. of precious metal.

The system on which the English Mint is conducted is marked by many interesting features. The Plantagenet and Tudor Sovereigns were not very scrupulous about the coins they issued to their subjects; they often debased either the quality or the weight, thereby enriching the Royal coffers at the expense of the people. Since those times, however, our coinage has been honest. The records of the Mint inform us that, from 1695 to 1700, so much coining was done that the Royal establishment in London could not execute it all; subsidiary mints were set up at Bristol, Chester, Exeter, Norwich, and York. Mr. (afterwards Sir Isaac) Newton was Master of the Mint at that time, and appears to have had some trouble in keeping his subordinates in order; they quarrelled so much, and allowed their wrangles to interfere so frequently with their work, that, to use his own words, "the money comes out worse than heretofore." Two of the Chester officials charged a third with malpractices, to which charge the accused replied, "I have treated neither of you with contempt and scorne, not even when one of you did spitt in my face in the publique office." In a letter written from London to Chester, Newton, vexed at these unseemly proceedings, said, "Till we come let there be no further quarreling, but let the publick business be peacefully carried on as it ought to be; for the Mint will not allow of the drawing of swords and assaulting any, nor ought such language wee hear has been used, be used any more amongst you." Full time indeed that some controlling power interfered when officials drew their swords and spat in each other's faces!

Although the English Government have almost invariably made the coin for the nation, there used to be a peculiar contract within the walls of the Mint itself. There was a company or corporation called the *Moneyers*, five in number, headed by a provost; they received the bullion from the Mint refiners and melters, and returned it in an equivalent weight of coins. When reforms were in progress, the Moneyers refused to produce their books to the Mint authorities; but there is reason to believe

that their profits were very large. In truth, there were far too many officials, increasing the loss which coining entailed.

The chief reforms in the system and organization of the Mint, by which its character has been gradually but materially changed, were commenced about thirty years ago. In 1849 a Royal Commission was appointed to enquire into the whole subject. The Commissioners recommended the cessation of the curious corporation of the Moneyers, the whole of the operations to be performed by officers directly under the Crown, and paid by salary. This recommendation was adopted by the Government; the contract with the Moneyers ceased in 1851. The refinery, till then kept up as part of the establishment, was let off to a lessee: all the metal to be coined being henceforth refined before it reached the Mint. No officer was to be allowed (as had hitherto been the rule) to carry on his own private business within the establishment, whether melting, refining, assaying, or die-sinking. There had been contracts between the Treasury and the Master of the Mint, as well as between him and the Moneyers. At one time there was a Warden to keep in check the Master, and a Comptroller to keep a check on both; but this cumbrous system gradually gave way to something more reasonable and commercial. Until the year just named the Master of the Mint was usually a politician, who went out of office when his party went out; he knew nothing of minting when appointed, and had to be coached by a Mint Board to enable him to get his 2,000*l.* a year. Mr. Shiel was the last of these political Masters; when he quitted the office, it was given to Sir John Herschel, a scientific man eminently fitted to do justice to the post. To him succeeded Professor Graham, the distinguished chemist—another excellent appointment.

With the Mastership of Sir John Herschel commenced so many useful reforms, that the Mint saved 10,000*l.* a year in salaries and contracts, without any lessening of efficiency. Until 1869 a curious system was adopted of paying the operatives of the Mint for their services. They received on an average about 55*s.* per week when at full work, and boys 18*s.* to 36*s.*, by a kind of piece-work on every thousand coins made; but only a trifle per week when no coining was going on. This was found to be attended in some respects with bad results. A new plan was therefore formed, combining piece-work and time-work. A lower rate per thousand was established for each kind of coin, together with a fixed wage of 20*s.* per week, or 10*s.* to 15*s.* for boys: this latter time-wage to be paid whether the Mint was

at work or not. The total earnings were about the same as before; but the men became better conducted, not being so flush of money at one time and so penniless at another.

When Professor Graham died in 1869, another change was made. An Act of Parliament was passed, making the Chancellor of the Exchequer *ex officio* Master of the Mint, without addition to his salary; the real working head to be the Deputy Master, who would submit an annual report to the Treasury, to be published among the Parliamentary Papers. Mr. Lowe was the first Master under this new system, and Mr. Fremantle the first Deputy Master.

Shortly after this, the Treasury sent out a Commission to foreign countries, to collect as much information as possible concerning the mint system of various States. The Commissioners were Mr. Fremantle, the Deputy Master, Mr. Chandler Roberts, the chemist to the Mint, and Mr. J. M. Napier, the engineer and machinist. The report presented was exceedingly valuable. The Commissioners visited the mints at Paris, Madrid, Milan, Florence, Rome, Constantinople, Vienna, Berlin, St. Petersburgh, Stockholm, Copenhagen, Utrecht, and Brussels; and everywhere received the fullest and most courteous information. Almost every possible subject connected with mintage organization and operations was enquired into by them. The engraving of the dies for stamping the two surfaces of the coins; the arrangement of the buildings and rooms of the Mint, so as to ensure good supervision, sufficient light, and due ventilation and cleanliness; the standard of fineness or sterling adopted in various countries; the allowance for error made under the name of "remedy;" the mode of treating brittle gold to fit it for coining; the materials used for the crucibles employed in melting; the methods of assaying; the treatment of waste, so as to lessen the loss as much as possible; the treatment of sweep (*i.e.*, the dust collected from floors, the soot from flues, and the ground-up materials of old crucibles, all of which contain minute portions of precious metal); the verification of gold and silver moneys; the sizes of the bars and ingots before melting; the points of difference observable in different mints in the mechanical processes of rolling, filleting, stamping, milling, &c.; the balances for weighing the blanks and coins—all these matters were fully investigated and reported on, forming a storehouse of useful reference for the future.

We may now conveniently treat with a little more fulness

of the metals actually used for coins at the Mint, and of the kinds of coin at present minted and current in the United Kingdom.

First, we have to consider *gold*. Anterior to the year 1816, England had at different times coined gold pieces of 5*l*., 2*l*., 21*s*., 10*s*. 6*d*., and 7*s*. value; but since that date there have only been two kinds, 1*l*. and 10*s*., known as sovereigns and half-sovereigns. In the same year gold was made the sole standard, silver being thenceforward legal tender only up to 40*s*., and copper up to 1*s*. Our gold coins consist, as we have said, of 11 parts pure gold to 1 of alloy. Goldsmiths divide gold for the purpose of estimating the ratio of alloy into 24 parts called *carats*; sterling or standard gold they characterize as being "22 carats fine," that is, 22 parts out of 24 are fine or pure gold; the best jewellers' gold rarely exceeds 18 carats in fineness, while the commoner kinds are brought down very low indeed in standard.

The actual weight of a new sovereign is rather difficult to express in figures. If it were, say, exactly a quarter of ounce troy, all would be plain and straightforward; but it is nothing of the kind; it is not an exact aliquot part of an ounce, either troy or avoirdupois, and can only be expressed by a long row of decimals. In a roundabout way we shall find that 1,869 sovereigns weigh near about 40 lb. troy; 1 lb. troy of sterling or standard gold about suffices for $46\frac{29}{46}$ sovereigns. Taking one sovereign alone, newly issued from the Mint, it weighs 123·27447 troy grains, the pure or fine gold in it weighing 113·00160 grains, the rest being alloy. Another mode of estimate is that 701 sovereigns weigh almost exactly 15 lb. troy.

A remarkable suggestion was made by the late Chancellor of the Exchequer to debase the gold coinage, so to speak, for a perfectly honest purpose. Gold coins do not pay the expense of minting; we lose money by every sovereign and half-sovereign made. Mr. Lowe proposed to lessen the quantity of sterling gold in a sovereign by exactly one grain, making it intrinsically worth only 19*s*. $11\frac{1}{2}$*d*., an operation by which he estimated the State would gain about 12,000*l*. a year—to this extent lessening the heavy loss incurred by gold coinage. But he reckoned without his host. Bankers and capitalists with one accord met the proposal with condemnation. The change, it is true, could be effected with a due modification of the machinery at the Mint; the standard or quality would be the same as at present, and the coin would be received at the Bank. But however easily we might become accustomed to it in England, great

harm would be done abroad by any tampering with this widely-circulated coin. And so Mr. Lowe abandoned his scheme.

The Mint may buy gold bullion from anyone—ingots, bars, nuggets, gold dust, old gold plate, foreign coin, &c., and pay for it with new coins of equivalent value. For practical reasons, however, it is found more convenient to buy of the Bank of England only, estimating the bullion at 3*l.* 17*s.* 9*d.* per oz. troy, but giving for it coin to the value of 3*l.* 17*s.* 10½*d.* The profit of 1½*d.* per oz. thus realised by the Bank amounts to 6,000*l.* or 8,000*l.* a-year. Some of the authorities at the Mint express an opinion that, by a re-arrangement of the system for buying bullion, this amount ought to belong to the Mint, to assist in defraying the expense of mintage.

Next we speak of *silver*. This metal is hardened for coining by means of alloy, as in the case with gold. The *florin* was first adopted as an English coin in 1849. The late Sir John Bowring advocated two silver coins, $\frac{1}{10}$ and $\frac{1}{100}$ of a sovereign respectively; the Government adopted the former but not the latter, struck many millions of florins, and ceased to strike half-crowns. A curious ferment arose during the early period of the history of the florin; the die-engravers forgot to introduce D. G. (*Dei Gratia*, "by the Grace of God") in the inscription: this gave so much offence that the Mint authorities re-melted the coins and re-engraved the die. In reference to the florin and half-crown, the Government, in 1873, consulted more than three hundred bankers and merchants as to the relative usefulness of the two kinds of coins. Some preferred florins only, some half-crowns only, but two-thirds of the whole number voted for both. The Mint, therefore, resumed the coining of half-crowns in 1874; and we have had a plentiful supply of both kinds ever since.

Silver coins are nearly as difficult as gold to estimate in exact weight, even with the use of fractions. A crown piece (the largest silver coin made in England) weighs 436·36363 grains imperial, equivalent to 28·27590 grammes metric. The other silver coins (half-crown, florin, shilling, sixpence, fourpence, threepence) are exactly proportionate in weight. There is a little more simplicity with silver than with gold in this respect, that 1 lb. of standard silver is coined into exactly 66 shillings. There was an especially large coinage of threepenny pieces in 1873, to meet the requirements of retail trade; this was rendered the more necessary by the fact that fourpenny pieces are now no longer coined. (The sooner the fourpences are called in and re-melted

the better; for they are so nearly equal in diameter to the threepence as to cause more trouble than convenience to the public.)

Lastly, we have to speak of *bronze*. The old copper coins were worth their weight in pure copper; but the bronze coins yield a good profit. Bronze was introduced in 1860, the metal consisting of 95 parts of copper, 4 of tin, and 1 of zinc. Old copper coins have hitherto been the chief source of metal for the new bronze. No less than 1,800 tons of the latter were struck by Messrs. Heaton and Messrs. Boulton and Watt, to give the system a start; since then smaller quantities at a time have sufficed to keep up the supply. In some years little bronze coinage has been struck at the Mint, it being found more convenient in various ways to contract with Birmingham firms for the manufacture. From 1868 to 1870 the coinage of new bronze was suspended for a curious reason:—"It is the habit of large brewing firms to relieve their customers the publicans of the bronze money which the latter are constantly receiving, without the intervention of a banker or other agent; and it follows that very large amounts of such coins are constantly liable to accumulate in the brewers' hands. To obviate the inconvenience which would periodically arise from this cause, the Mint has willingly requested persons applying to it for bronze coins to obtain them from such firms as were known to hold an undue quantity of them. The circulation has by this means been kept in a satisfactory condition."

A bronze penny weighs 145·83333 grains imperial, or 9·44984 grammes metric. It is not generally known that the three kinds of bronze coin have weights disproportionate to their current value. In order that the penny may not be too heavy for convenience, or the halfpenny and farthing too small, the former is made a little lighter than its due weight. It may be useful to remember that a bronze halfpenny is exactly an inch diameter, a penny $1\frac{1}{5}$ inches, and a farthing $0\frac{4}{5}$ inch. Many (perhaps all) of the bronze coins struck by Messrs. Heaton have the letter H stamped on the reverse under the date, to distinguish them from coins struck at the Mint. Small bronze coins called *Maundy Money*, of 4*d*., 2*d*., and 1*d*., are coined to a trifling extent every year. Half-farthings and one-third farthings are coined for some of the Colonies; but our regular home bronze currency comprises simply the penny, halfpenny, and farthing.

We have stated that our gold coins do not pay the expense of manufacture: the taxpayers have to make up a deficiency every

year. In 1869 an elaborate investigation was made, to ascertain of what items this loss is made up. Professor Graham and Colonel Smith, Masters of the London and Calcutta Mints respectively, conducted the inquiry. Sovereigns cease to be legally current when they have lost three-quarters of a grain each by wear; after this deterioration they must be withdrawn and re-melted. The Mint incurs a twofold loss hereby—the loss in actual gold and the expense of re-coining. By capitalising these losses, it is found that when (say) a hundred sovereigns are first made, an additional sum of 1*l.* 8*s.* 1½*d.*, as a kind of endowment, would be required to keep them right permanently. The first cost, the number coined, and the durability of the coins, were all taken into account in making this estimate. The greater the number coined at once (as in most manufacturing operations) the less the cost of each. If five million sovereigns are made in a year, the cost would amount to just about a halfpenny each. The gold coins in circulation in the United Kingdom are supposed to be about 80,000,000*l.* An average sovereign becomes by wear too light in eighteen years, an average half-sovereign in ten years. On this account, three and two-third million sovereigns and two and a half million half-sovereigns become too light every year, and must be re-coined. The expense of this re-coining and the loss of actual precious metal by wear amount to a very large sum every year. As a summing up, the inquirers came to a conclusion that 1⅔ per cent. ought, in some way or other, to be added to the current value of the sovereign, to defray the cost of original coining, the cost of subsequent coining when the coins become light, and the actual loss of the metal itself by wear. Mr. Lowe, as we have said, tried to lessen this loss by making the sovereign one halfpenny less in intrinsic value than it is at present; but the financial public would have none of it, and we still continue to bear the heavy loss. British Mint coins, like Bank of England notes, are unimpeachable in foreign countries; and it is well to retain this high reputation even at some loss.

Too much space would be occupied by anything like a detailed description of the remarkable and beautiful processes of coining; but a brief outline may usefully be presented.

The Government have no direct means of knowing when a batch of new coins is necessary. This information is obtained indirectly from the Bank of England, which is in daily correspondence with the numerous London and country bankers. The wants of the community—wholesale traders, shopkeepers,

and market people—become in this way known; and the Bank of England informs the Master of the Mint that a further supply of this or that denomination of coin is desirable. The Mint, as we have said, may buy gold bullion from any one, but practically the purchases are nearly all made from the Bank of England; and to the Bank the new coins are nearly all sent when finished. The Bank makes a profit by these transactions, while the Mint bears a loss, which falls eventually on the State purse. The gold bullion is sent from the Bank to the Mint mostly in ingots of 180 oz. troy, which have been assayed and weighed; but it undergoes a further series of these operations at the Mint, rigorously conducted. Nuggets, gold dust, foreign gold coins, all help to constitute the bullion which the Bank provides, and which requires to be brought to standard, or sterling, by adding a very exact proportion of alloy to pure gold. The ingots are about 8 inches long, 3 wide, and 1 thick; but when they are melted and converted into standard, they are cast into bars 21 inches long, varying in width and thickness according as sovereigns or half-sovereigns are to be made. To obtain silver bullion, the Mint goes into the open market, and buys at the price of the day: this price has been so low (estimated in gold) during the last few years, that the Mint makes a profit which pays the expenses of minting, and recoups the heavy loss occasioned by the wear and tear of old coin. The ingots of silver, about 13 inches long, 5 wide, and 4 thick, when assayed and converted to standard, are cast into bars; these bars, about 21 inches long, vary in width and thickness according to the kind of silver coin to be made.

The bars of standard gold, whatever processes they may previously have undergone, are melted into ingots at the Mint. A picturesque operation this. The gold, exactly orthodox in standard, is melted in crucibles, from which it is passed out as a stream of liquid fire into ingot moulds, which are arranged, side by side, upright. The beautiful sparkling of the golden stream reminds a spectator in some respects of Messrs. Brock's pyrotechnic displays at the Crystal Palace. The crucibles, we may here observe, are generally made of a mixture of plumbago and fire-clay while the ingot moulds are made of iron, in such a way that they may be easily opened to admit of the extrication of the golden ingots when cold, or sufficiently cooled to have solidified.

The melter's work is now done; and then commences the series of mechanical processes. The ingots are far broader and thicker

than any of our coins, and require to be brought down by passing repeatedly through a rolling mill, the rolls of which are gradually brought nearer and nearer together. Herein arises a new point to consider; every rolling hardens the gold, and renders it too brittle to be further rolled without annealing. This annealing consists in effect in heating the gold up to a carefully-calculated temperature, and then allowing it to cool gradually. Thus the alternation goes on, rolling and annealing, rolling and annealing, until the ingot is brought to the form of a fillet or ribbon, greatly increased in length, but reduced to the thickness necessary for sovereigns or half-sovereigns, as the case may be. There may be a difference in the temperature adopted for annealing; but speaking generally, the reduction of a silver ingot to the form of a fillet is similarly effected to that of gold.

Next we pass to the *stamping-out* department, where the fillets are cut up into circular discs or blanks, each to make one coin. The press cuts up the fillets very rapidly; and so rigorously formed are the cutter and stamp that each blank has the proper diameter within so small a fraction as one thousandth part of an inch. A waste of labour occurs in this process, which the authorities would certainly avoid if they could. In cutting circular pieces out of a large strip, much metal escapes the action of the cutter; this, which is called *scissel*, is thrown into the crucible to be melted over again. The scissel amounts to 40 or 50 per cent. of the whole fillet. Thus, to provide 10lb. of gold coin nearly 20lb. of standard gold must be filleted and stamped out, nearly half of it requiring re-melting. At present there is no known method of averting this.

In silver coining, a singular process of ringing is sometimes adopted, to test the soundness of the blanks. A flat stone slab is placed nearly but not quite horizontal; a workman takes up a quantity of blanks in his two hands, and dashes them down with great rapidity on the slab; if they all give out the same ring or sound, so far well; but if any one of them yield a dull smothered sound denoting a crack or fissure, the trained ear of the man detects it instantly, and the delinquent blank is forthwith consigned to the melting-pot.

Gold blanks, we may observe, undergo a process called *blanching*, preliminary to the action of the coining press. They are heated, exposed to the air, washed with dilute acid, rinsed with water, and dried in sawdust or bran—whereby the gold is improved in richness and beauty.

Before describing the actual coining, the all-important *dies* must be noticed. The die and medal department at the Mint contains many such dies in various stages of progress, and coins and medals which have been produced by such of them as are finished. Some of the larger medals are of exquisite workmanship, and have called forth the highest abilities of our Wyons and Pistruccis. Confining ourselves, however, to coins, a *punch* is engraved for each kind of coin, by patient cutting, with very hard and sharp tools, on a piece of pure steel in a softened state: the design being in relief, as in a finished coin. From this punch the *die* is produced. The punch is hardened, another piece of steel is softened, and intense pressure is employed to bring about this action of the one on the other. The piece of soft steel becomes a *die*, on which the device or design is in *intaglio*, or sunk below the general surface. By repeated careful hardening, each punch can produce a large number of dies. Every die must have a companion or *counter-die*, to stamp the other surface of the coin; this is obtained by pressure from a separately engraved punch.

The blanks and the dies being ready, the real process of coining ensues. The counter-die is adjusted, face uppermost, in a small frame on the bed of the stamping-press; the blanks are laid one by one on it; and the die is fixed, face downwards, to the bottom of a descending arm. The arm, brought down with great force by the action of a lever and flywheel, subjects the blank to a powerful squeezing, which impresses the device of the die on one surface and that of the counter-die on the other. The metal of the blank would be squeezed out laterally, were it not confined within a steel collar just large enough to fit it. The inside of this collar is *milled*, or cut into little grooves, the pressure of which produces the milled edge of the coin. All our modern coins have milled edges except the three-penny piece, which has a smooth edge. The blanks are supplied to the press by feeding them into a hopper or tube, pushing them laterally one by one by means of a slide, so as to bring them precisely on the counter-die, and sliding them off when coined.

The sovereign weighing machine, invented by Mr. William Cotton (at one time Governor of the Bank of England), and improved by later inventors, is one of the most beautiful of automatic appliances. The sovereigns are fed into a tube, from which they fall one by one on a small poised plate. If of proper weight, each coin is jerked off into a particular box or compartment; if a little over weight, into a second; and if a little under

weight, into a third. The machine almost *thinks* while it works, so well does it estimate the real weight of each coin. The degree of accuracy attained in our actual coining is almost marvellous. Supposing the exact proper weight to be represented by 1,000, anything between 998 and 1,002 is allowed to pass; but a coin below 998 is pronounced to be too light, while one exceeding 1002 is subjected to a verdict of too heavy. Besides this individual weighing of gold coins, gold and silver coins generally are weighed in small parcels, and then in larger parcels, in a balance so delicate that it will turn with a single grain even when each scale-pan contains 1,200 ounces.

One of the results of the numerous processes carried on at the Mint is the production of *sweep*. Besides a very careful treatment of floor-dust, flue-soot, and crucible-scrapings, the worn-out crucibles themselves are made to render up any gold and silver they may contain ingrained in their substance; they are ground to powder, sifted through a sieve having four hundred meshes to the square inch, and handed over to the refiner, who extracts every particle of precious metal. The Mint used to sell the waste and sweep by tender; but it is now found more profitable to employ a refiner and pay him directly for his services. Even old furnace fire-bricks are included in the sweep.

The curious ordeal known as the *Trial of the Pyx* has, like most other parts of the Mint system, undergone changes within the last few years. Under the plan of contract it was of considerable importance, seeing that the contractors were not entitled to full payment until a jury of experts had delivered a favourable verdict. The trials of the pyx have at different times between 1611 and 1879 been presided over by the monarch, the Lord Keeper, the Lord Chancellor, the Lord President of the Council, and the Archbishop of Canterbury. There were eighteen such trials in the fifty years ending with 1866, rather more than three years' interval on an average. Mr. Chisholm, Chief Clerk of the Exchequer (now Warden of the Standards) was directed in the last-named year to report whether (as was asserted by some members of Parliament) the trial of the pyx was an "idle ceremony" and "empty show," or a really useful and necessary operation. He reported decidedly in the latter sense, and, moreover, recommended that the trials should take place annually.

The pyx is a box to contain the gold coins that are to be tested, and there is another pyx for silver coins. A few coins from every day's mintage are put into the pyx, and these are taken to

be a fair average of the whole number. Trial plates are preserved with great care, rigorously made of the exact alloy for sterling or standard; and by these the coins are tested. There are trial plates still preserved extending over a period of four centuries, showing in what way the standard has varied from time to time. The present plates, made by the Goldsmiths' Company, are replicated, one copy being kept at the Mint, another at the Assay Office, a third at the Exchequer, a fourth at Goldsmiths' Hall, and others at the official assay offices; but those at Westminster are deemed to be the authoritative standards, brought forward at the trial of the pyx. The boxes and chests containing the trial pieces are secured with the best locks that Chubb can provide, and the keys are so many that the all-important trial-pieces cannot be brought forward to the light of day without a good deal of unlocking by officials. The trial plates were in 1870 transferred from the custody of the Exchequer to that of the Warden of the Standards, an officer under the Board of Trade. He also keeps the Imperial standard weights for weighing gold and silver coins.

The trial of the pyx has been shorn of some of its dignity recently; but the following was, in a general way, the mode of procedure before the trials were made annual. All new coins, as minted, were made up into bags or *journeys* of 180 oz. gold or 720 oz. silver; a journey being a technical name for coins made in any one day. All the coins in each bag were of one denomination only. One coin was taken from each bag, and put into the gold or silver pyx, as the case might be. One coin out of each bag was also handed to the Queen's Assay Master. The pyxes were locked by three officials, after each day's proceedings. When there were about a hundred bags in each pyx, one pound troy was taken from each, to be counted as well as weighed. Then two coins were taken from each pound by the Deputy Master, and weighed with scrupulous accuracy, any deviation from the proper weight being recorded to a minute fraction of a grain. One of these two coins was sent to the Mint assay room, while the other was placed in the all-important official pyx. On an appointed day the Government, at the instance of the Master of the Mint, invited the Goldsmiths' Company to assist at a trial of the pyx. Many officials assembled at the office of the Queen's Remembrancer, Old Palace Yard; the Pyx Chamber, in the cloisters of Westminster Abbey, was opened, and two trial pieces (gold and silver) taken out; Imperial standard weights of gold and silver were also produced. A jury of goldsmiths, after being

sworn, were at work for several hours, melting into an ingot a certain number of gold coins from the one pyx and of silver coins from the other, rigorously assaying the ingots, assaying small bits of the two trial pieces, and comparing the assays one with another. For convenience, most of these operations were conducted at Goldsmiths' Hall, where the necessary assay furnaces, balances, &c., were ready at hand. At a certain hour in the evening, the jury of goldsmiths having announced that their labours were finished, all the officials again assembled, and the foreman of the jury read their verdict. It is invariably the case that the coins in the pyxes are found to be up to the proper standard, both in quality and in weight, within that minute allowance called the remedy. The Queen's Remembrancer, therefore, pronounced a verdict of *acquittal*, implying that the Master of the Mint had duly fulfilled his engagement to Her Majesty the Queen. The proceedings of the day were wound up with a banquet given by the Goldsmiths' Company to the officials and persons concerned.

We may remark that, at the trial of the pyx in 1878, the jury comprised ten practical goldsmiths, well versed in the delicate manipulations of their craft. They reported that, out of the bags of coin in the Mint pyxes, 26 sovereigns, 56 half-sovereigns, 10 half-crowns, 9 florins, 6 shillings, 8 sixpences, and 9 threepences (there were no fourpences coined it that year), were taken. They weighed all the coins individually, to a minute fraction; they melted the gold coins into one ingot and the silver into another; they assayed these ingots, and compared them with the gold and silver trial pieces; they weighed and assayed, over and over again, and found that, in all cases, both weight and fineness were far within the remedy. In short, a more complete verdict in favour of the Master of the Mint there could hardly have been.

The remedy, of which we have more than once spoken, is a necessary allowance for human fallibility, like the "personal equation" which is recognized by practical astronomers. By no possible means could *perfect* accuracy be obtained; an allowance for inaccuracy is necessary; and it is for the parties concerned to decide where the limit should be placed. We have purposely avoided troubling the reader with long rows of decimal fractions, but a few facts may be given to show how well the Mint does its work. At the trial in 1878, five sovereigns, selected at random, ranged between 123·174 and 123·304 grains respectively, and

four half-sovereigns between 61·567 and 61·637 grains. The fineness or standard of the nine coins ranged from 916·5 to 916·8 of pure gold in every thousand parts. Silver coins were, in like manner, tested, and all, of both metals, found well within the remedy, as we have said.

If we estimate the value of an establishment by the amount of work done, it becomes interesting to know how many coins are struck at the Mint, which is strictly a money manufactory. As the amount of coinage is much more in some years than others, and very unequal in the relative numbers of each kind coined, it will be best to take ten consecutive years, from which the reader can easily deduce the average for each year. The following figures refer to the ten years 1869 to 1878 inclusive :—

Gold Coins.

Sovereigns, weight	9,764,910 oz.
,, number	38,022,178
,, value	£38,022,122
Half-sovereigns, weight	2,536,666 oz.
,, ,, number	19,754,180
,, ,, value	£9,877,142

Total value, £47,899,264.

Silver Coins.

Half-crowns, weight	2,665,080 oz.
,, number	5,843,376
,, value	£730,422
Florins, weight	8,999,280 oz.
,, number	24,748,020
,, value	£2,474,802
Shillings, weight	7,242,480 oz.
,, number	39,833,640
,, value	£1,991,682
Sixpences, weight	2,571,840 oz.
,, number	28,290,240
,, value	£707,256
Threepences, weight	1,005,720 oz.
,, number	22,125,840
,, value	£276,573
Maundy Money, 4*d.*, 2*d.*, 1*d.*, weight	5,160 oz.
,, ,, ,, number ..	168,300
,, ,, ,, value	£1,419

Total value, £6,182,154.

Bronze Coins.

Pence, weight	683 tons.
,, number	73,436,160
,, value	£305,984
Halfpence, weight	239 tons.
,, number	42,828,800
,, value	£89,277
Farthings, weight	66 tons.
,, number	23,654,400
,, value	£24,640

Total value, £419,851.

The total value of all the coins struck—gold, silver, and bronze

—was thus 54,501,269*l.*, averaging 5,450,127*l.* per annum during the last ten years.

It will be observed, under the heading of gold coins, that the number of sovereigns did not quite correspond with the value, the latter being a little less than the former. But how wonderfully small was the difference—only 56*l.* in nearly 40,000,000*l.* sterling! This shows how nearly the Mint approached absolute accuracy both in fineness and in weight.

A collateral matter may here be touched upon. The subject of an international standard of monetary value is of importance to the Mint to this extent: that the coining operations would be affected by any determination of the question whether gold or silver should be the standard, the legal tender. A brief notice of the subject, however, is all that will be necessary here.

In 1865 a Monetary Convention was formed between France, Switzerland, Belgium, and Italy, with the idea of bringing about similarity of standards and weights of coin. In 1869, in furtherance of this object, the French Government formed a Commission on Coinage, and invited England to join in the discussions; England clearly announced her preference for a gold standard and gold only. In 1873 a Conference was held at Vienna; the Powers represented decided on a gold standard, and on the striking of two coins that should be accepted by all as current standard coin. One of these was to be a gold coin containing $7\frac{1}{2}$ grammes of pure gold; the other a silver coin containing $1\frac{1}{4}$ grammes of pure silver. Mr. Fremantle, who was present at the Conference, pointed out the difficulties that would stand in the way of the acceptances of these recommendations by European nations generally. Year after year the subject was kept open. In 1875 it was shown how great would be the embarrassment if a double standard were adopted in any country, or a silver standard without gold; silver bullion, as compared with gold, was worth $61\frac{1}{2}d.$ per oz. in 1873, but only $56\frac{3}{4}d.$ in 1875—since which date it has fallen still lower.

One more Conference we may advert to, viz., that which was held in Paris in 1878. It was initiated by the United States, with the hope of inducing European Governments to adopt a double standard, with a permanent ratio of value between gold and silver. It soon became apparent that the attempt would be futile. England has adopted a gold standard since 1816, and has no desire to change it; Sweden and Norway side with England; Belgium and Switzerland rely chiefly on a gold standard,

but also adopt silver to a limited extent ; Italy appears to favour the United States' view ; Denmark and Portugal are content with a gold standard ; Holland is in a transition state, with a leaning towards a double standard. France and Austria adopt an "expectant attitude ;" while Germany and Russia keep their own counsel in the matter.

The net result is, that in 1879 there is *no* agreement among European Powers on the subject ; and the English Mint is left to adhere to its old arrangements.

We have hitherto said little concerning the buildings in which the operations of the Royal Mint are carried on, beyond the simple fact that they are situated on Tower Hill. We must now draw attention, however, to a singular struggle that has been going on. The Deputy Master of the Mint has, for ten consecutive years, most earnestly pleaded for new premises in a new locality, *without any additional cost to the nation ;* he has fought like a man who well knows that what he is fighting for is commendable and advantageous. He has been beaten by adverse circumstances, and is just as much without a new Mint in 1879 as he was in 1869. The difficulties he encounters strikingly illustrate the complexity of our system (if system it may be called) of planning and constructing public works—boards and corporations and departments often assuming this form, that A is not able to move until B has authorised C to obtain the necessary permission from D.

In 1869 Mr. Fremantle and Mr. Rivers Wilson drew up a report on the general state and management of the Mint. In regard to the buildings, they said : "The present accommodation is unnecessarily extensive, implying a corresponding excess of expenditure for their maintenance. The site, although valuable, is not convenient for the purposes for which it is employed. There is reason to believe that the work could be equally well done, if not better, in a much smaller building, and undoubtedly with a considerable saving of expense. In the event of the withdrawal of the Admiralty branch from Somerset House, we are advised that the whole of the Mint departments could be commodiously established in the part of the building thus vacated, with a sufficient margin of accommodation to allow for a considerable increase in the staff, or for any expansion in the operations of the Mint."

The Savoy, as well as Somerset House, engaged attention as a convenient site for a new Mint ; but both yielded to a scheme

for building a new structure on the Thames Embankment between the Temple and Blackfriars Bridge. Mr. Hunt, land valuer to the Treasury, when going over the Mint with Mr. Fremantle, found that the total area is about five acres, of which nearly one-half is let to Sir Anthony Rothschild, as a refinery for the precious metals. The sale of the site, Mr. Hunt estimated, would produce money enough for a new site, new buildings, and new machinery: insomuch that the change would be no expense whatever to the public. The Government would require 180,000*l.* to do all that is necessary on the Embankment; but he had no misgivings that this and even more would not be realised by the sale of the property on Tower Hill.

In 1870 a letter was addressed by the Treasury to the First Commissioner of Works, stating in some detail the reasons for the proposed change, and requesting him to prepare a Bill for this purpose, to be introduced into Parliament the next following session. In 1871 a Committee of the Commons decided in favour of the Bill. Mr. Fremantle, in evidence before the Committee, stated that the present buildings are so scattered as to render supervision difficult; that there are twenty-five residences for officials within the walls; that two or three would be quite sufficient; that the spot is 3 miles 330 yards from the Treasury, and 1 mile 480 yards from the Bank of England—whereas the new site would be only 1 mile 113 yards from the Treasury and 1,460 yards from the Bank. Five stations on the District Railway would be found very convenient for going to and fro between the new Mint, the Bank of England, and the Treasury. Mr. Lowe was Chancellor of the Exchequer at that time, and about that time also the Chancellor assumed the functions of Master of the Mint, leaving the practical superintendence to the Deputy Master. He warmly advocated the new scheme; nevertheless the Bill was thrown out. Many inhabitants of Whitefriars feared that the coining processes would contaminate the atmosphere. Mr. Roberts, the Mint chemist, however, clearly explained that there is nothing deleterious in the operations. Refining, it is true, gives off poisonous fumes; but the precious metals are refined before they reach the Mint. Refining is absolutely necessary, to get rid of the small percentages of arsenic, antimony, lead, and bismuth which nearly always accompany unrefined gold; one ounce of any of these would render 2,000 ounces of gold too brittle for coining. But, as we have said, none of the refining processes are, or are to be, conducted within the walls of the Mint; they are managed for, not by, the establishment.

Again and again was the attempt repeated. In 1872 a Bill for a new Mint was thrown out, and another in 1873. In 1874, when a new Government came into office, Mr. Fremantle (the really responsible official for everything at the Mint) put in an earnest plea for the new buildings. Another Bill was brought in, but only advanced to a second reading. In that year an entire cessation of coining for twelve weeks resulted from a breakdown of some of the old machinery. Another and more serious breakdown, in 1876, occasioned no less than five months' cessation of operations. Fortunately a large mintage of gold had just been completed, else the consequences might have been serious; the Bank of England might possibly have been unable fully to meet the demands made upon it by the public for gold in exchange for notes. The responsible heads of departments at the Mint urge that there ought to be double sets of machines to make provision for either set being disabled; but that it is not worth while doing this in the present buildings.

In 1876 another Bill was introduced in Parliament; but a difficulty arose about obtaining possession of the new site, and the Bill had to be withdrawn. Foreign affairs have since then absorbed so much public attention that the new Mint scheme has gone pretty well out of sight, and the Deputy Master has appealed to the Government in vain. In his latest report (June, 1879), Mr. Fremantle adverted to the hitch that has checked the progress of the negotiations, and thrown a cloud over his anticipations. In a country like France, such a hitch would hardly have presented itself; the Government having much more direct control than in England in all these matters. It occurred between the First Commissioner of Works, the Metropolitan Board, and the City Corporation, respecting the acquisition of the site; and he somewhat mournfully adds, "I do not propose again to dwell upon the insufficiency and obsolete nature of the machinery of the present Mint, to which attention has been called in many former reports; nor need I urge upon their Lordships the necessity, which they have uniformly recognized, of putting an end to the difficulties by which the department has for many years been surrounded, and which have so greatly impaired its efficiency." We may be pretty certain that, notwithstanding all the present obstacles, this very desirable public improvement will eventually be carried into effect. It is not creditable to us that England should be behind many foreign countries, and even colonies, in the perfection of her Mint machinery.

GEORGE DODD.

CYPRUS.

THE following brief sketch of the island of Cyprus is intended merely as a summary of the past history and the present capabilities of the most recent addition to England's dependencies. The space available is too limited for more than a mere outline of facts; and anything else would indeed be superfluous, seeing that so much has been written on the subject by many able men, some of whom have spent a large portion of their life in the island, and have devoted much patient research to the study of its past and present condition.

Cyprus is believed to be the island referred to in the Bible as Chittim, and this idea is strengthened by the name of the ancient capital—Citium, now Larnaka. The expression "Isles of Chittim" in the Old Testament seems, however, to have been applied to the countries of Europe generally, perhaps so named because Cyprus was the nearest island to the Holy Land, and thus, as the best known, gave its name to other lands situated beyond it. Various derivations for the modern name, Cyprus, are given by different writers, the chief authorities deriving it from some of the natural products of the island. Thus some see its origin in the shrub *Lawsonia inermis*, in Hebrew *gopher*, Greek Κύπρος, Latin *cyprus*, which grows abundantly in the island, and from which the dye "henna," used by Eastern women for their hair, eyebrows, and for the tips of their fingers, is made. By others it is considered to be derived from the Latin *cuprum* (whence the French *cuivre*, German *kupfer*, and English *copper*). It is certain that copper mines were worked in the island at a very early date, but it is as probable that both plant and metal may have derived their names from the island where they were found in such plenty as that it was named after them. This latter conjecture is somewhat strengthened by the term χαλκὸς Κύπριος, or *Aes Cyprium* (Cyprian bronze), which is frequently used by ancient writers, and from which it seems probable that the name of the metal copper was really derived.

Although we have no clear accounts of the earliest inhabitants of Cyprus, most modern writers are of opinion that they were of Semitic origin, and that they gave to the island its first name, Kittim or Chittim. However this may be, we have abundant evidence that the Phœnicians traded with the island and founded colonies there at a very early date, probably as early as

the thirteenth century B.C. They also introduced the worship of the goddess Ashtaroth or Astarte, almost identical with the Greek Aphrodite and the Roman Venus. Cyprus was for many years famous for the worship of this goddess, and the ruins of many temples dedicated to her have been discovered. According to tradition, she was born from the froth of the waves at a spot on the seashore between Larnaka and Limasol, where the sea is constantly breaking and dashing up in white foam. Signor Corrodi exhibited lately in London, in his interesting collection of sketches in Cyprus, a picture illustrating this spot and the legend. According to other traditions, the first Greek settlements in Cyprus were founded by the Trojan heroes; but, as it is considered by many that the celebrated war of Troy was itself a myth, this does not give us any clue to the real date of their foundation; they are known, however, to have existed side by side with the Phœnician colonies, and the two languages seem to have long remained distinct, the only point in common between the two races being the worship of the goddess Astarte. During this period the Phœnicians appear to have introduced, as they did wherever they went, civilisation and certain arts and manufactures, while the Greeks established themselves by degrees as the military and administrative chiefs.

In addition to the Phœnician and Greek languages, there existed also a Cypriote language. Coins and tablets have been found with inscriptions in this ancient tongue, which have been the cause of much speculation and research on the part of antiquaries. A tablet with an inscription in two languages, Phœnician and Cypriote, was discovered, in 1868, by Mr. Lang, who, with Mr. G. Smith, of the British Museum, succeeded in proving that the Cypriote language had great affinity with the Lycian, and that some of the letters in the two alphabets were identical.

Cyprus appears to have owed allegiance and paid tribute successively, with but occasional intervals of independence, to the Egyptians, Assyrians, and Persians; and in the reign of Xerxes we already hear of the importance of the island as a naval power, for Herodotus tells us (VII, 90) that "Cyprus supplied 150 vessels to the Persian fleet under Xerxes." At the same time each of the principal cities in the island was governed by a king; of these there were ten or eleven, the King of Salamis being generally the chief. The island was wrested from Persia by Alexander the Great, but after his death it was conquered by Ptolemy, King of Egypt, and remained a valued possession of

the Egyptian monarchs until B.C. 58 it was created a Roman province. Cyprus was one of the first places into which Christianity was introduced by St. Paul, and several bishoprics were established there. In 117 A.D. there occurred a memorable revolt of the Jews, who massacred 240,000 of the other inhabitants; this revolt was at last suppressed, and all Jews banished from the island under pain of death.

The division of the Roman Empire at length caused Cyprus to pass into the hands of the Byzantine Emperors, and with the exception of brief intervals during which it was successively governed by the Arabs and Greeks, it remained in their hands until near the end of the twelfth century. In 1184 Isaac Comnenus, a nephew of the reigning Byzantine Emperor, succeeded, by means of forged letters, in obtaining possession of the island and shortly afterwards proclaimed himself Emperor of Cyprus. Under his misgovernment the prosperity of the island continued to diminish, and in the year 1191, in consequence of the ill-treatment of the crews of some English vessels wrecked on the island on their way to the Crusades, and the endeavours of Isaac to make a prisoner of the Princess Berengaria of Navarre, the affianced bride of King Richard Cœur de Lion, Cyprus was invaded and captured by the English, and King Richard was married at Limasol to the Princess Berengaria. But Richard did not care long to retain possession of the island, and sold it after a few months to the Knights Templar, whose tenure, was, however, but brief. Cyprus then passed, partly by sale and partly by gift, into the possession of Guy de Lusignan, titular King of Jerusalem, the founder of the Lusignan dynasty, which continued to govern Cyprus for nearly three hundred years (1192—1489), with the exception of Famagusta, which was for upwards of ninety years in the possession of the Genoese.

In 1489, Catherine of Cornaro—widow of the King, Jacques II, and daughter of a wealthy Venetian—abdicated in favour of the Venetian Republic, and Cyprus remained in their hands until the year 1570, when the Turks invaded it, and landed a very large force under Mustapha Pasha, accompanied by a powerful fleet. The Turks soon reduced the whole island to subjection, with the exception of the capital, Nicosia, and Famagusta. Nicosia succumbed after a siege of only forty-five days, and its capture was the signal for scenes of violence, bloodshed, and robbery. Famagusta was now the only stronghold left to Venice; the fortress was commanded by the gallant Governor

Bragadino, and stood a siege of nearly a year. The garrison at length—when ammunition and provisions were exhausted, and their ranks thinned by disease and losses—capitulated on honourable terms, which were shamefully violated by the Turks, who murdered the principal officers and inhabitants, and most cruelly tortured to death the gallant Governor. Since that time—a period of a little more than three hundred years—Cyprus has remained under Turkish rule; and during the whole of that time, owing to misgovernment and apathy, the prosperity of the island has continued to decline, its natural resources have been neglected, and its population has diminished. Thus, while the population was estimated to be above a million under the Venetians, it was considered, in 1878, to be not more than 200,000. In that year, by virtue of the Anglo-Turkish Convention, Cyprus passed under British rule. Though it is not actually a British possession, for the surplus revenues, after payment of the expenses of the administration, revert to the Sultan, yet it is thoroughly under British government, and it is earnestly to be hoped that a few years of English administration may suffice to produce a material change in the prosperity and prospects of the island.

The island of Cyprus is the most easterly in the Mediterranean, and is situated in the mouth of the Gulf of Iskendroon, at nearly equal distances from the coasts of Asia Minor and Syria. It lies between lat. 34° 29′ and 35° 41′ N., and between long. 32° 24′ and 34° 35′ E., having a total length of nearly 145 miles, with a width varying from about 35 to 50 miles in the western portion of the island; the north-east extremity of the island, however, consists of a narrow tongue or promontory 45 miles in length and only from 10 to 15 miles wide.

Cyprus is very mountainous, and is divided into distinct portions by its mountain ranges. The main chain runs across the island a little to the south of its centre, and throws out numerous spurs in all directions, thus breaking up the land at their feet into numerous valleys and small plains. This range is commonly known as the Mountains of Olympus or Troödos, and is the range referred to by the ancient writers as the third range of Olympus, the dwelling-place of the gods of the Greek mythology. The name of Mount Olympus was, however, in those days applied to a single peak, though authors are divided in opinion as to the exact situation of that peak. The highest point in the range is now known as Mount Troödos, which is 6,590 feet above

the sea level; but it has been suggested that the much less important, though isolated, peak of Mount Stavrovuni, or Santa Croce, situated 12 miles west by south of Larnaka, and to this day frequented by pilgrims, is the peak designated by Strabo as Mount Olympus. The second important mountain range runs along the northern coast, and fills up nearly the whole of the narrow north-east tongue; the more western part of the range is known as the Kerinian Mountains, from the Province of Kerinia in which they are situated; they are in no part much more than 3,000 feet in height, but they are very steep both on the northern and southern sides, and leave only a narrow strip of plain between them and the northern shore. The space between these two mountain ranges is occupied by a large plain, known as the Messara, which is about 60 miles in length by from 10 to 20 in breadth; about half of this plain is under cultivation, and the remainder consists of waste lands which are capable of being brought under cultivation.

On first consulting a map, Cyprus would not appear to be badly off as regards rivers, and consequently irrigation. The central plain, or Messara, is watered both by the principal river of Cyprus—the Pidias, or ancient Pediæus, which rises in the Troödos Mountains, and at first runs north-east to Nicosia, then turning east and emptying itself into the Bay of Famagusta close by the ruins of the ancient Salamis—and by the Morphu, which takes its rise almost in the same spot as the Pidias, and flows at first north and then north-west, emptying itself into the Gulf of Morpha. The south of the island is watered by several streams, the principal of which is the River Kuris, or Licos, which falls into the sea at Episkopi—the ancient Curium. But these streams which were once rivers of some importance, are now little more than mountain torrents, owing, probably, to the diminished rainfall in the island which has been brought about by the almost complete denudation of the plains and lower slopes of the mountains of the forests which anciently covered them. The Pidias alone has now any claim to be called a river during the whole year. This and the other streams generally overflow their banks in the rainy season (October to February) and flood the land; as the waters subside they leave behind them a fertilising mud, in the same manner as the Nile, but during the rest of the year they give but little, if any, help in the way of irrigation. The rainy season, although generally occurring at the time above stated, is not, however, to be absolutely depended

upon ; thus it is recorded that, in 1330, during the reign of Hugo of Lusignan, the rainfall was so heavy, and the rivers overflowed to such an extent as to spread desolation far and near ; and, under Constantine, there was no rain for thirty-six years, so that most of the inhabitants left the island. Again, in modern times, Consul Lang mentions the disastrous effects of a very small rainfall in 1869.

The coast of the island consists of a succession of gulfs and bays, many of which, though not sufficiently landlocked to form natural harbours, are yet capable, with the addition of some artificial works, such as breakwaters, &c., of affording safe anchorage in all the prevailing winds. On the north-west and north, the principal harbours or roadsteads affording shelter from certain winds are the Bay of Chrysochou and the roads of Pyros and Morpha, the harbour of Kyrenia and the Bay of Exarkos ; on the east and south, the bays and harbours of Salamis and Famagusta, the bay and roads of Larnaka, the roads of Limasol and the small harbour of Paphos (Kuklia). The great disadvantage of all these harbours and roadsteads is the shallowness of the water for some distance from the land ; this has the effect of raising a great deal of surf when the wind blows on shore, and also of compelling vessels of any size to anchor at a considerable distance out, thus making the operations of landing and embarking cargo both tedious and expensive. It would not, however, be a matter of great expense to construct breakwaters and deepen the old harbours, especially that of Famagusta, which, at the end of the sixteenth century, was sufficiently deep and large to afford safe anchorage to the whole fleet of the Venetian Republic. Larnaka is the port at present most frequented by trading vessels, and through it, consequently, most of the exports and imports pass ; but it is a mere open roadstead, and does not offer facilities for the establishment of a naval station such as are supplied by Famagusta, with its old fortifications, which command both land and sea, and could without difficulty be restored.

The principal towns of the island are : Nikosia or Lefkosia—the capital—and Larnaka. Nikosia is most picturesquely situated on a plateau near the southern slope of the rugged Kerinian mountains ; it contains the noble Gothic cathedral of St. Sophia, deformed by the addition of two tall and awkward-looking minarets, and many old palaces and churches, which now serve as warehouses and barracks. Here, as elsewhere, the Turks have

allowed all that is old and beautiful to fall into ruin, and have built nothing new. Consul Lang says: "When we enter the town all the beauty which we saw from the outside is dispelled. We pass along ill-paved, narrow streets, and the nasal organs rapidly attest that no attention is paid to the cleansing of the town, and the ruined houses here, and the broken aqueducts there, serve as a proof that we are in the neglected domains of the Crescent and the Star." Larnaka is situated on the coast, nearly south of Nikosia, and is the most thriving town on the island; it is divided into two parts, viz., the town proper, which is situated a short distance inland, and is inhabited by the native population, and the Marina on the coast, where all the foreign consuls and the European merchants dwell. As before mentioned, it is the port through which most of the imports and exports pass. According to a report by Consul Watkins, the total number of vessels entered and cleared at this port in 1877 was 515, and their tonnage 91,812 tons; out of this number 394 were Turkish vessels. The value of imports during the same period was 105,277*l.*, and of exports 150,918*l.* Limasol, on the south coast, is but a small town, situated in a very fruitful district, and the emporium for the Cyprian wines. Famagusta, on the east coast, once a place of so much importance, is now little more than a magnificent heap of ruins, with only a few hundred inhabitants; the day is, however, probably not far distant when it will again become a naval and military station of value. The other towns of Cyprus are, at present, of so little importance as not to be worth mention in this brief sketch. Of roads there are very few in the island deserving that name. Between Larnaka and Nikosia there was formerly a very good road, but it has been allowed for many years to fall into such bad repair that wheeled carriages can only with difficulty use it. In consequence of the lack of roads, goods have to be transported on the backs of camels, mules, and horses—a slow and costly mode of transport.

Owing to the genial climate and the diversity of temperature of the mountainous and plain regions of Cyprus, the vegetable productions are very varied, though the land does not at present yield a tithe of what might be obtained under skilful management. At one time the island was almost covered with dense forests, which are spoken of by both Greek and Roman writers, but the earliest inhabitants commenced their destruction for the purposes of ship-building and mining, and this destruction was

continued by successive generations, while nothing has ever been done towards replacing the felled trees. Consequently, the island is now almost deforested, and one of the first duties of its new occupants must be the planting of trees and the protection of such small forests as still exist; indeed, both these works have already been commenced. There can be no doubt that forest culture and irrigation will, before many years, make Cyprus the fertile garden it was in olden times. Of all the agricultural products, cereals hold the most important place. Wheat was largely grown until recently, but of late years it has been in great measure replaced by barley and oats, which ripen earlier, and so escape the locusts. These insects have been for many years the greatest pest of the island. The species is the same that devastates Anatolia and Asia Minor; their eggs are laid always in uncultivated land, and are hatched towards the end of March, after which the young insects crawl about for four weeks, until their wings are strong enough to enable them to fly. Up to the end of June they fly all over the land, devouring every green thing within their reach, and after that the air and the streams are poisoned by their dead bodies. Many have been the ineffectual attempts to get rid of these pests, but only one method seems to be really effectual, although the gradual process of bringing all the land under cultivation would probably diminish their number. The mode which has at last succeeded in almost freeing the island from the locusts is that carried out in 1869, by Said Pasha, viz.: the collection and destruction of the eggs before the time for hatching. The female insect lays her eggs in a case, and it has been ascertained that each case contains on an average forty eggs; on this basis, it has been calculated that, in 1869, about 50,000,000,000 of locusts' eggs were destroyed.

The value of the grain crops has also always been much diminished by the adoption of a very primitive mode of threshing and winnowing. The threshing machine is a species of wooden sledge, with sharp stones on the lower side; the corn is spread out in sheaves, on an earthen floor, and the sledge, well weighted, is dragged over it by oxen; the sharp stones both force out the grain and, at the same time, bruise and cut up the straw, so as to make it suitable for fodder for the oxen. But the grain is, by this antiquated process, both bruised and mixed with earth and stones, and this latter defect is but partly remedied by the winnowing, which simply consists of throwing up the grain, fine

straw, and stones into the air with wooden shovels, when the breeze carries the light portions further than the heavy ones, this forming the only separation used. It will thus be seen that there is ample room for the English authorities to endeavour to introduce improvements, though the task may not prove so easy as it at first sight would appear. Several attempts have been made to introduce machinery and an improved system of agriculture, but hitherto without very conspicuous success, partly, perhaps, on account of the unsuitability of the machinery to the conditions of the ground and crops, and partly owing to the inveterate dislike of the inhabitants to new customs and their adherence to the ways of their ancestors.

Cotton was formerly grown and exported in large quantities, but the amount has much fallen off of late years. The cotton produced from the native seed is not very good, and is of a light brown colour; but cotton of a first-rate quality has been raised from American seed, and Consul Lang says that its increased cultivation is dependent merely on increased means of irrigation, and on a more rational mode of collecting the tax which has hitherto been levied on the standing crop, thus preventing the picking of the cotton from the pod daily as the pods opened, and compelling the grower to wait until it suited the tax-gatherer to view the whole crop. This system has encouraged the culture of the inferior native cotton, which suffers much less than the American plant from being left long without picking. Madder of excellent quality has been long grown in Cyprus, but its culture is now all but discontinued since the discovery of alizarine. Tobacco used to be grown largely, and of very good quality; but its culture has been very nearly given up of late years owing to the excessive burthen of the tax imposed on it by the Turkish Government. Locust beans, the fruit of the caroub tree, are largely grown and exported, mainly to Russia, where they are much esteemed and eaten by the peasantry. Cyprus wine has been famed for many centuries; the grapes grow up to a height of about 3,000 feet above the sea, the best description being produced near Limasol in vineyards formerly belonging to a Commandery of the Knights of the Temple and of Malta; the wine obtained from them is thence called Commanderial wine, and is highly esteemed. The manufacture of wine has been, however, much decreasing of late years, owing to the vexatious restrictions of the Turkish tax-farmers, and growers have preferred making their grapes into raisins, but Mr. F. Brown, at

the Sheffield meeting of the British Association, read a paper in which he anticipates a great extension of the vine culture, and says that the production of wine has already largely increased owing to the removal of some of these restrictions. Among the other vegetable productions of the island may be mentioned hemp, olives, fruits of all kinds, sesamum seed, etc. The mulberry tree is much cultivated for the purpose of rearing silk-worms; this has been one of the industries of the island for many centuries, and the Cyprus silk was famed in the thirteenth and fourteenth centuries; during the last few years the produce (which had been falling off for some time previously) has again increased owing to the fortunate freedom of the island from the silk-worm disease, which has prevailed to such an extent in Syria and the surrounding countries. The best cocoons come from the districts near Paphos, Kythrea, and Carpas. The women of Cyprus hatch the silk-worm eggs by wearing the cloth on which they are laid round their waists.

Although the vegetable riches of Cyprus are very great, they are far surpassed by its mineral wealth; but as this requires some expenditure of labour before it will give any return, while the vegetable products are left very much to themselves, and thrive mainly on account of the genial climate and fertile soil, very little use is at present made of it. It was not so, however, in earlier ages, and there can be but little doubt that it was as a metal-producing country that Cyprus was mainly valued by those great metal workers, the Phœnicians. Frequent reference is made by the Greek and Roman writers to the Cyprian bronze, and it would appear that down to the time of the Romans swords and armour of this metal were largely manufactured; a sword of Cyprian bronze was given to Alexander the Great by the King of Citium, and it was celebrated both for its lightness and its good quality. Pliny mentions that the Romans drew their chief supplies of copper from Cyprus, and that the mines most in repute were situated at Tamasus (now Lithrodonto). Heaps of scoriæ—the refuse of smelting—are also found in several other parts of the island, though the exact site of most of the old mines has been lost sight of. Malachite, or carbonate of copper, is, however, still found in the vicinity of some of these heaps of scoriæ. M. Gaudry, who recently made a scientific exploration of the island, discovered iron in abundance, both in the conditions of sulphuret and hydrate, and also as specular iron ore. M. Gaudry also thinks that zinc was formerly worked in

the island, because frequent mention is made by ancient writers of the cadmium of Cyprus. Sulphur, alum, asbestos, gypsum, talc, rock-crystal, jasper, and agate are also found, and several useful kinds of yellow and brown ochre and umber are exported to Holland. Building stone can be obtained in any quantity; some of it of excellent quality, and almost resembling marble. Salt is produced in abundance in the salines or salt lakes near Larnaka and Limasol; it is a Government monopoly, and is almost the only source from which an increasing revenue has been of late years derived. Besides supplying the home consumption, large quantities are exported—principally to Syria. During the hot weather the water in these salt lakes evaporates, leaving behind the crystals of salt which are collected in heaps and exported without any attempt at refining.

The domestic animals of Cyprus are, with a few exceptions, the same as those of the south of Europe generally; horses are, however, small and not plentiful, being mostly imported from Syria. The Cyprian donkeys and mules are famed, and are exported to Egypt and the East; some of the mules were also purchased by Government for use during the Abyssinian War, and were then found to be superior to any of the other breeds. Camels thrive well, and are largely used as beasts of burden. According to the Consular Report for 1877, there were about 750,000 sheep in the island, and they produced about 330,000 lbs. of wool. Count Folliot de Crenneville says that great damage is done by the thousands of goats which are driven by the goat-herds at random all over the island, thus causing great destruction of crops; if this is the case preventive measures will, doubtless, have to be adopted. Game is abundant, consisting principally of partridges, woodcocks, quail, francolins, and hares. There is also no scarcity of fish, and sponge fishing is carried on on the S.W. and S.E. coasts by Greek fishermen, the produce being sold chiefly to Greek buyers. Consul Watkins reports that forty boats, each with a crew of from eight to ten men, were employed in this fishing during the year 1877. Bee keeping is largely practised throughout the island, and the Cyprian honey and wax are held in high esteem.

But little can be said concerning the arts and manufactures of the island; indeed, the former can scarcely be said to exist at all at the present time, though it would appear that a few sculptors and poets lived in Cyprus in the time of the Greeks. General di Cesnola says that the earliest of the Greek prophetic

singers, Euclos, belonged to Cyprus, and it was also the native place of Stasinos, the author of one of the celebrated poems of antiquity—the Cyprian Iliad or "Kypria," which is sometimes wrongly attributed to Homer. The principal industries of Cyprus are leather-tanning and dyeing, and silk-weaving. The tanneries at Nicosia turn out from 1,500 to 2,000 bales of leather per annum ; it is exported principally to Syria and Egypt. The silk-weaving is chiefly a domestic industry carried on in their own houses, with very primitive looms, by girls and women ; they show much skill and taste in their work, and produce an exceedingly fine silk net, as well as tasteful embroidery. English cotton cloths are imported to the island, and dyed or printed in brilliant colours for divans or coverlets, and then re-exported to Syria, Smyrna, and Constantinople. When the olive crop is good, soap is made in considerable quantities, and, in addition to the wines, a good brandy is also made.

Much has been written, and very opposite accounts have been given, of the climate of Cyprus : thus, while some writers have described the island as a paradise, others have declared it to be almost unfit for the habitation of man. The former have certainly indulged, to some extent, in romance, while the latter have probably merely written in accordance with their own very limited experience—acquired in many cases during a stay of only a few days in the island ; writers in some English newspapers have also made much capital of this alleged extreme unhealthiness of the island, endeavouring thereby to prove that the Government had selected for occupation an island which must infallibly prove a grave for every Englishman doomed to reside there.

The truth is that, owing to its situation and the mountainous nature of the country, Cyprus possesses some of the climatic characteristics of the three adjacent quarters of the globe, and within a limited space there is in summer an extreme range of temperature varying according to the altitudes at which observations are made. During the rainy season (October to February), there are almost tropical rains ; for the next three or four months the climate is delightful, with only slight rains, but from the middle of June to the middle of September the heat is very great, and it is immediately after the rains and during the first heat that fevers prevail, especially in the low lands near the coast.

When our expedition first landed in Cyprus, the soldiers were under the disadvantage of arriving in a climate to which they

were unaccustomed before the hot season was over, and they were at first obliged to be under canvas, and not far from the sea-shore. With the usual adherence of the British soldier to the habits of his native land, and the difficulty he commonly experiences in adapting himself to altered conditions, he would naturally be liable to be attacked by the prevalent fevers. There are but few of our colonial, or indeed Mediterranean, possessions where the partaking of a heavy meal in the hottest portion of the day, and a somewhat free indulgence in spirituous liquors, would not have been followed by similar or worse results, though the existence of proper barrack and hospital accommodation would diminish the proportion of fatal cases. The fact that the Cypriotes are and always have been a strong and healthy people must be taken as a proof that the climate cannot be very unhealthy, and it should be no more difficult for Englishmen to become acclimatised in this island than in any other of our widely scattered possessions, especially when improved sanitary arrangements shall have removed the most fruitful sources of disease, viz.: over-crowding and want of proper drainage and ventilation. Most Englishmen who have resided for any length of time in Cyprus concur in stating that with proper precautions, such as avoiding linen clothing, cold drinks, unripe fruit, and much exposure to the dews of evening and the low morning temperature, they have enjoyed excellent health.

The foregoing outline, brief as it is, may serve to give some idea of the natural products and capabilities of Cyprus, and of the field which exists for the employment of English capital in the development of the agricultural and mineral wealth of the island. But not only on account of its natural riches is the possession of Cyprus important to England. Its position as a naval and military station is a most commanding one, and will, so soon as we have deepened and restored the old harbour of Famagusta, be entirely unequalled. Situated as it is at a distance of only about 200 miles from Port Saïd, it is really the key to the Suez Canal, and thus completely protects our communications with India by that route, and enables us to avoid the necessity of landing in Egypt an armed force. Further, the island is but 100 miles from Iskendroon or Alexandretta, a seaport which will, in all probability, be the terminus of the Euphrates Valley Railway when that long-talked-of line is constructed. Even until that time it is to us the quickest route by which to reach the Tigris Valley, and thus check any ambitious

designs which Russia, now that she has possession of Kars, may attempt to carry out. And, independently of any warlike ideas, we have in Cyprus a storehouse for the whole trade of the Levant, and of Arabia, Persia, and Mesopotamia. Since, also, it has been determined that the Turkish Empire must be maintained—and it can only be effectively kept up by steadfast endeavours to improve the condition of both Christian and Mahomedan subjects—the example set by the English in the introduction of reforms into the Government of the neighbouring island of Cyprus will surely be the most effectual mode of inducing the Porte to introduce similar reforms throughout the Empire. Both before and after the Christian era, the importance of Cyprus was constantly recognised, and its possession struggled for by Power after Power; but these, while acknowledging her importance, did nothing to increase her prosperity, looking on her simply as a huge and inexhaustible dockyard, where they might build and equip their navies, a military district where they might levy forces, or a territory from which some extra tribute might be extorted. Under an enlightened and Christian Government with whom revenue is not the only consideration, but who will carefully consider what is best for the prosperity of the island and its inhabitants, the ancient glories of Cyprus may in a great measure return to her, and if this should prove to be the case, future generations of Englishmen will acknowledge the wisdom of the step taken by the present Government in securing possession of an island so famous in history, and so rich in natural resources.

J. R. Royle.

Note.

The following works have afforded me much valuable information, viz.:—

"Cyprus: its Cities, Tombs, and Temples," by General di Cesnola;

"Cyprus," Consul R. H. Lang;

"Die Insel Cypern in ihrer heutigen Gestalt," Victor Graf Folliot de Crenneville. Encyclopædia Britannica, 9th Ed., art. Cyprus.

THE TEMPERANCE REFRESHMENT HOUSE MOVEMENT.

THERE are probably few, if any, among the social, philanthropic, and religious movements of the present day of greater importance than that which forms the heading of this paper. Temperance refreshment houses were common enough years ago under the title of coffee-houses, and as late as the year 1715 there were something like 2,000 registered in the metropolis alone. Charles II by a proclamation endeavoured to put down these establishments, but failed; and within the period of a single generation, coffee-houses which had sprung up in London had become household words in their own day, and many of their names are familiar to readers of the history of that time. Though open to the public generally, each house seems to have had its special clique of frequenters, and practically became a kind of club for social intercourse. There was Wills' Coffee-House, where the great John Dryden spent so much of his time, where he had a chair in the chimney corner during the winter, and a seat in the balcony during the summer. There was Button's Coffee-House hard by, and there might be seen day after day Addison and Steel discussing their coffee and tobacco, and things in general; and then there was Tom's Coffee-House, where Johnson, Garrick, Foote, and Sir Philip Francis, the supposed author of Junius's Letters, spent much of their time; and the Rainbow, which Charles II had tried to suppress. The old coffee-houses also in many instances assumed a specific character from the class of clients which resorted to them. But gradually they were converted into fashionable clubs, while for the great bulk of the people public-houses and beershops took their place, and eventually became the only places to which the working classes could resort for refreshment and recreation, the ordinary coffee-houses of more recent times offering little attraction for either.

Such being the case, there has sprung up, though somewhat tardily, a recognition of the great fact that one of the chief needs of the day is a multiplication of temperance refreshment houses; the word "temperance" being used not in an offensive sense towards persons who are really *temperate* in their use of alcoholic drinks, but in a modern and common sense as implying total abstinence from such beverages. Under the term of "temperance" refreshment houses will come the cafés, coffee taverns, coffee palaces, cocoa and chocolate houses and rooms, coffee

public-houses, and other similar establishments. The working classes, and the middle classes also, have as it were a right to demand the provision for them of such places of resort, where they can obtain refreshment without being thrown into the company of the ordinary frequenters of public-houses. It is hard upon them to be placed in the way of temptation, and to be almost forced into it when they need refreshment or an interval of rest and recreation. It is hardly necessary now-a-days to enlarge on the terrible evils that accrue from drunkenness in this country. These are recognised on all hands. Drunkenness demoralises and pauperises a very large proportion of the people of the land, rendering them careless both of their souls and bodies; it fills our hospitals, workhouses, and gaols; it brutalises its victims, making them little better, or rather making them worse, than "the beasts that perish;" it is the prolific source of evils innumerable, and goes far to render inoperative the various works and agencies carried on for the religious, social, and moral good of the community. We all see and acknowledge this now; and, happily be it added, many are the earnest workers endeavouring to eradicate this social canker, that would eat out the very life of the nation were it not for their labours. The cause of temperance is advancing; and recently it was stated publicly that there are now no less than 4,000,000 of total abstainers among us. Of course, the highest ground on which to urge immortal beings to eschew intemperance is religion, for drunkenness is not only a moral degradation, but a sin. Unfortunately, however, there are many who will not listen to religious appeals. Moral suasion then becomes another lever for work in the cause of temperance, and the advocacy of "the pledge" on considerations of expediency. But these and other means which might be mentioned, though much good has been done by them, require supplementing, especially in reference to those who bear the honourable name of "the working classes." As long as for these almost the only places for refreshment, whether it be food or drink, are ordinary public-houses and gin palaces, so long will the temperance movement be greatly hindered. In our large centres of population there are thousands of workmen, and others too of a superior class socially, who perforce must take one or two meals near their work daily, and far away from their homes. Working men have had few places hitherto to resort to but public-houses where they could get their own bit of meat, a chop or a steak, cooked for them, or already

cooked viands served up; and when they go to public-houses they are expected, of course, to drink alcoholic liquors whether they really wish for them or not. Many a young lad, when first going to work, and before he had a taste for beer or other alcoholic drink, and also when his taste was actually averse to them, has been obliged to betake himself to the public-house, for convenience's sake—no temperance refreshment house being at hand. Thus he has acquired a taste for public-house drinks, and after passing through the stage of believing that they give him strength, and that he "cannot do without them," eventually becomes a drinkhard, if not a drunkard. Moreover let us be reasonable when speaking of the working classes. During their hours of leisure, especially in the evening, the public-house has been almost the only social resort for the working man, his only club where he can meet his fellows, chat over his work, prospects, or the news of the day; the only place where he can see a newspaper or indulge in some pastime, such as bagatelle, dominoes, and such like. It is all very well to say that after his day's work he should go home and make himself happy in the bosom of his family. His home is too often a very wretched place, where space is cramped, the light feeble; and where domestic duties, such as getting the children to bed, providing their suppers, or putting a thousand and one things in order, are being carried on, so that his presence during the whole of an evening is often undesirable. He wants his recreation, and has as much right to have it after its kind as his betters.

Now to meet all these wants of the working man there has not been till lately any place, as we have said, but the public-house; and then he must drink, drink, drink, if he uses the house at all. Neither the ordinary eating-houses, where hot meat in various forms is sold between certain hours, nor the ordinary coffee-houses, meet his requirements as places wherein to take his meals when away from home, or to serve as places for recreation after work; the former being, comparatively speaking, expensive establishments, and the latter so repulsive-looking, so frouzy, dingy, and comfortless, and often disreputable, that they repel rather than invite customers. The modern public-house, with its attractive outside, its plate-glass windows, its bright fittings, its warmth, its light, its company, and a variety of seductive baits, carries the day: a matter for little wonder when all the circumstances of the case are taken into consideration. There are many excellent persons who would by stringent

legislation close all such houses or gradually diminish their number; but that is a question that hardly comes in for discussion here. Probably this object, however desirable, can hardly be expected to be attained till such a conversion of the national tastes and habits has been effected as to leave no demand for public-houses. We must, then, take them as an existing fact, and endeavour practically to set up rivals to them by supplying the working classes with temperance refreshment houses, that, in their various aspects, shall be as convenient and attractive as the public-houses themselves. Let there be a fair competition; and let the result of this competition, the success or failure of the temperance public-houses, depend on the working classes themselves and the patronage they give them. It is but reasonable, moreover, that those who do not on principle take alcoholic drinks, or who do not care for them and would rather take other beverages, should be provided with suitable refreshment and recreation houses. It is very hard that even against their inclination they may have hardly an alternative but to use the modern public-house as by law and custom established.

However the movement inaugurated has already given them an assurance that their just requirements will be, as indeed they already have been, provided for to a limited extent. And here, before giving a history of the movement, let us say a few words as to the principles on which temperance refreshment houses, coffee taverns, cocoa taverns, coffee public-houses (or by whatever name these are and are to be known) should be established and conducted so as to give them a fair chance of competing with the ordinary public-houses and securing the support of the working classes. Space demands that we should be brief on this part of our subject, and we must therefore be content to lay down, in a few words, the principles that commend themselves, without entering into much detail. One of the fundamental principles of the movement to be observed is that every refreshment house should be so established and conducted as to be a paying concern. Though philanthropy has largely entered into this movement, it will not succeed unless it rests on a sound commercial basis. In such a matter as this, the working classes would fight shy of the houses if they thought they were offered to them as a charity or in the way of a bribe. They must pay, and experience has already shown that they can be made to pay. Without commercial success no amount of philanthropy would extend this movement widely enough to be socially felt. The next point of

importance is that the house should be attractive to the eye—that the front should show good work, plenty of plate-glass, cheerful colour, and ornamented gas lamps; that the inside should be cheerful also, with plenty of light, which should be intensified by the aid of mirrors; that it should be clean; that the bar and its fittings and surroundings should be ornamental and bright; that it should be kept warm in winter, and cool in summer. In a word, the temperance refreshment house should be as like as possible in its general aspects and arrangements to a well and cheerfully arranged public-house. In one point, however, it should differ from the latter, viz.: in having plenty of seats for customers. The absence of this accommodation generally in a public-house is remarkable, but there is worldly wisdom in it, for if customers are made to stand they have nothing else to do but drink. It may be added, that while this movement is still young it would be well that the refreshment houses should be in main streets and thoroughfares, not only because they would do more business, but because the people would become familiar with them more quickly. We all know how a public-house in a main thoroughfare, and especially if it be a "corner house," can ensure almost double the premium and rental of one only a few yards down a side street. It would be well, too, that refreshment houses should be distinguished by names and signs as our public-houses. Customers like to have the house they use known by a title. It is hardly necessary to say that the bar and refreshment tables should be on the ground floor; but in addition to the eating and drinking department there should be a smoking and a reading room, and if possible another room for bagatelle, draughts, dominoes, &c. A room large enough for concerts or other entertainment purposes is also a desirable adjunct. The more rooms the better, and as great a variety of conveniences as possible. Newspapers and periodicals should be plentifully supplied. Another grand principle is that all the food and drink should be good and wholesome after its kind, and cheap as far as is compatible with the commercial success of the house. Tea, coffee, and cocoa should be the staple drinks, supplemented with aërated waters, fruit essences, and so forth. Bread and butter and cake should be the staple foods, though where the hot joint system can be profitably introduced between certain hours of the day it will be well to introduce it. At every house working men should be able to have their own food cooked for them at a nominal charge. The waiting should

be good also, and the table appointments as good as compatible with the character of the establishment. It is a great mistake to suppose that the working man does not appreciate the elegancies and refinements of life in his way; he is certainly quite capable of being educated to appreciate them, and well appointed refreshment houses would help to do this. It must, however, be remembered that if the food and drink are to be sold at almost the lowest remunerative point, there will not be much margin for special refinement in the house appointments. Still, let all be as neat, clean, cheerful, and in good taste as possible; and let the attendants, whether they be men, women, or boys, be also neat and clean, and civil withal. Working men appreciate all this. Such are some of the main principles on which temperance refreshment houses should be carried on; and if any of our readers think that we have urged too strongly that these houses should be made as like public-houses as possible, we can only say that as reasonable beings we must take facts as they are. There stand the public-houses with all their attractions; we cannot abolish them. Let us try to compete with them; and we can only compete with them by running somewhat on their lines. The word public-house has now an unpleasant sound about it, and an evil odour, as well it may, considering the multitude of evils which are its product. Still there is nothing objectionable in the name *per se*. There must be "public" houses probably as long as the world lasts. They are a social necessity in a certain sense. But let us do what we can to have as many "public" houses of the *right sort;* temperance "public" houses, coffee "public" houses—never mind the name. Let us try and do away with the evil association connected with the "public" house, and there will be no harm in the word remaining. We do not pretend to have said all that can be said on the principles which should guide this excellent movement, but enough in a general way perhaps to point out certain landmarks as it were to those interested, or likely to be interested, in it.

The different public companies which are busily engaged in establishing temperance refreshment houses seem generally to have agreed on the above principles, and prosecute their work in accordance with them, as also do the great majority of private individuals, and small bands of two or three or more persons, who in the true spirit of philanthropy and desire to do good have established and are carrying on such houses in various parts of the kingdom. To this the writer of this paper can

personally testify, as within the past year he has visited almost all these establishments in London and many in the provinces.

Here, perhaps, it may be well to say a word or two on the subject of providing substantial meals, in the way of dinners, at coffee public-houses. In many, especially in the larger towns, the rule has hitherto been not to provide dinners, but only what are called "light refreshments," including, perhaps, cold ham and corned beef, and possibly hot sausages. Experienced managers hold to the belief that the secret of success lies in confining themselves as much as possible to the sale of drinks, the supply of other articles of food—even cold meats—being regarded rather as a necessary concession to the wants of the customers, than as a branch of the business deserving of active encouragement. And it is no doubt the case that a shilling received for cups of coffee will usually yield a larger percentage of profit than could well be got out of a shilling's worth of solid food; while the working expenses, to say nothing of initial outlay, in a coffee public-house of the ordinary kind, are necessarily much less than where a staff of servants is employed in cooking and serving dinners. But to fairly estimate the general result in either case, it would be necessary to take into the account the number of shillings that could be turned over in the same house under the two systems of trading. The examples of such London houses as the "Rose and Crown" and the "Royal Standard," shows that the supply of dinners may be rendered fairly remunerative under ordinary conditions, and there is evidence in the success of the Glasgow and Bristol dining halls, that a profitable business may be done by providing substantial meals at extremely low prices, if the arrangements can be made on a sufficiently large scale. The question how far the Glasgow system may be judiciously extended appears to call for careful consideration, for there can be no doubt that many frequenters of coffee public-houses, especially the very poor, have need of a greater variety of food than is at present offered them. Salted and spiced meats may be more or less popular, but when eaten habitually without vegetables—in many houses not even potatoes are to be had—they cannot be regarded as the best kind of diet, especially in summer. Much of the ill-health from which working men and women in populous towns so often suffer, and much of the craving for stimulants which leads to such disastrous results, is due simply to want of proper food—that is to say, to insufficiency of food which is nutritious and wholesome. Yet for

fivepence, the price which a Londoner is charged by the licensed victualler for a sausage and a glass of beer, the Glasgow or Bristol working man gets a dinner of soup or broth, flavoured with vegetables, a plate of meat and potatoes, and a plate of pudding, the food being ample in quantity, excellent in quality, and sufficiently varied for all purposes of nutrition. The plate of meat, which in Glasgow usually consists of "collops," takes in Bristol the form of a cut from a joint or a portion of stew. At the Bristol Dining Hall the annual balance during the last sixteen years has always been on the right side, while at Glasgow, where the halls are thirty in number, the profits are very considerable. Could not equally satisfactory results be attained elsewhere? An experiment which was made a few years ago to provide dinners on a similar plan in the East of London proved unsuccessful, owing to causes with which we are not acquainted; but the growing popularity of the coffee public-house movement has now prepared the way for further efforts in the same direction, and there appears no reason why a business which is prosperously conducted in Glasgow and Bristol should not prove remunerative in other places. The contract prices of the articles consumed is about the same we believe in Glasgow as in the principal southern towns, with the exception of milk, which costs 20 per cent. less than in London; and the necessary expenditure in other directions does not vary so much as to materially affect the result. A business which assumes such proportions as that at Glasgow has obvious advantages over undertakings on a more limited scale, but wherever the same system of management, at once liberal and economical, is adopted, similar results, in a greater or less degree, may be looked for; and there can be no doubt that the opening of dining rooms on the Glasgow system would confer an incalculable boon upon the working population of our great towns. The Coffee Taverns Company (of which more hereafter) already provides substantial hot dinners at, we believe, all its different houses for its customers, and also cooks for them any meat they like to bring with them. This plan is one which most supporters of the movement would wish to see carried out in all establishments, except, of course, in those where from local circumstances the system could not possibly pay.

There is a question in connection with the management of the refreshment houses attended with some little difficulty, and that is the advisability of associating them with religious missions.

Both in London and the provinces this has been done in many instances, a mission room for religious services being attached, while the coffee room or bar itself is hung with religious texts and pictures. In fact, some of the houses seem to be centres of a religious propaganda. Now without saying one word to hurt the feelings of those who aim at benefiting the souls of men and women at the same time as their bodies, it may be more than doubted whether the attempt made in this way is a judicious one. Many of the working classes are apt to resent any such endeavour to "thrust religion down their throats," as they say, and the exhibition of sacred prints and texts in refreshment houses has certainly the effect of driving many of them away altogether, and especially young persons. Moreover, it gives an opportunity to those who object to any form of the temperance movement to turn this particular attempt into ridicule, and we all know how susceptible of ridicule are the weakminded and the young. While, therefore, giving all credit to those who advocate the religious element in this movement, we would side with those who think that it would be more judicious to omit it. A cognate question is that of opening these houses on Sundays. On this there is a great diversity of opinion among the supporters of the movement, and there have been many discussions recently on the subject, with various results. For instance, at an extraordinary meeting of the shareholders of the Brecon Coffee Tavern Company, after a long discussion, a vote was taken the result of which showed 256 for opening on Sundays and 220 for closing—majority for opening, 36. On the other hand, at a public conference convened to specially consider this question, a motion to the effect that "until the people of this country demanded the opening of coffee-houses on Sundays it would be unwise to open them," was carried by a large majority. As a matter of expediency it would seem that the opening of temperance refreshment houses on Sundays is desirable, at least during the same hours that public-houses are opened under the licensing laws; for it is by no means unlikely that customers in the habit of frequenting the former, when they find them closed, would be tempted to resort to the latter.

We will now endeavour to give a brief account of the history of the temperance refreshment houses movement, and of the different agencies which are at work in its propagation. Here, as we are aware, we are treading on somewhat ticklish ground, for in this, as well as in many other social movements, when they have

achieved a measure of success, there is considerable questioning as to whom should be accorded the credit of originating the idea of the modern temperance refreshment house.

Perhaps the first movement was one made in Dundee about twenty-five years ago, and to Lord Kinnaird, a true and zealous friend of the working man, belongs mainly the honour of establishing coffee public-houses. The first coffee-house was established with a considerable element of benevolent help, and others had to be assisted largely at first, but afterwards they became self-supporting. Some persons, however, consider that Leeds is more fairly entitled to the honour of being called the "birthplace of the reformed public-house movement in England," as here, in September, 1867, was opened the first "British Workman public-house." Since then these British Workman public-houses have become abundant in Leeds, and answer well. In Liverpool, and also in Manchester, the movement has progressed most satisfactorily. The British Workman's Public-House Company commenced operations in the former town in 1875, with a capital of 20,000*l.* It has now about thirty-five houses open, with accommodation for nearly 10,000 persons. It pays a 10 per cent. dividend, carrying over, at the same time, 5 per cent. to a reserve fund, and writing off a considerable sum for depreciation. The success of the movement in Liverpool is, we believe, to be attributed to a very great extent to Mr. Short, of Bristol, who, about eight or nine years ago, was the pioneer of a similar movement in Bristol, which resulted in the successful establishment of the Bristol Club and Tavern Company. Mr. Short has also been engaged in forming a similar company in Newcastle-on-Tyne. In Manchester the good work was commenced in 1873, and among agencies there may be specially mentioned the Manchester Coffee Tavern Company, which was started in 1877. The success of this enterprise may be estimated from the fact that, some months ago, the average weekly attendance at the eight houses opened to the public was upwards of 65,000, or rather more than 1,300 at each house daily. Without referring specifically to any more large provincial centres of population, it may suffice to say that in all the movement is progressing more or less, and indeed in most of the smaller towns throughout England temperance refreshment houses of some kind or other have been established or are in contemplation. In Dublin the movement was taken up by the Dublin Total Abstinence Society, which has several successful houses at work.

In connection with these Dublin coffee taverns, the following excellent arrangement deserves special mention. The committee, knowing how prejudicial to the welfare of working men, such as porters, &c., is the system of giving drink allowances, issue checks or scrips at 1*s.* and 2*s.* per dozen, which are used by employers and others to hand to those to whom they would give "allowance," these scrips being exchangeable at any of the Society's establishments for food and drink, according to their value. As the checks cannot well be otherwise converted, persons who are charitably disposed towards beggars and tramps give them in perfect confidence that they cannot be spent on intoxicating liquor.

Turning to the history of the movement and agencies at work in London, we find that the metropolis did not throw itself heartily into it so early as the provinces. But it is doing its best to make up for lost time, and there is little doubt that before long the coffee tavern and cocoa room will be a conspicuous object in all our main thoroughfares as well as in the less frequented streets. Foremost in the good work has been The Coffee Tavern Company (Limited). The head-quarters and manager's office is at 27, Soho Square, and Mr. John C. Barnard, of 47, Lincoln's Inn Fields, who has been indefatigable in the cause, is the honorary secretary. The Right Hon. W. F. Cowper-Temple, M.P., is the President, and among the Vice-Presidents are the Duke of Westminster, the Earl of Derby, and Mr. Gladstone. The Company was founded in 1876, "to carry on and develop the business of tavern and refreshment house keepers, save only as the same includes the sale of alcoholic liquors." The original capital was fixed at 10,000*l.* in 1*l.* shares, but the favour with which the Company was received by the public was so marked, that in 1878 it became necessary to increase the nominal capital to 50,000 shares of the same value, which are readily taken up as the Company's work calls for further subscription. In the year 1877, the dividend was carried over. In 1878, the Company paid a dividend of 4 per cent. on its subscribed capital. The Company had at the time of sending this paper to press twenty houses in active operation; the list of which is appended, as those interested in these matters may be glad to inspect one or more of them:—

No. 1.—The "Glass House," 344, Edgware Road, W.
,, 2.—The "Market Tavern," 78, Lower Thames Street, E.C.
,, 3.—The "Temple Arms," Seven Dials, W.C.
,, 4.—The "Tom Hughes," St. Martin's Court, W.C.

No. 5.—The "Phœnix Tavern," Harrow Road, W.
" 6.—The "Red Boot Tavern," 259 and 261, High Street, Camden Town, N.W.
" 7.—The "Morton Arms," 51, Exmouth Street, Clerkenwell, W.C.
" 8.—The "Chequers," 119, High Street, Stoke Newington, N.
" 9.—The "Cocoa Tree," 339 and 341, Commercial Road, E.
" 10.—The "Station Arms," 387, Euston Road, W.
" 11.—The "Anchor," 30 and 32, Goswell Road, E.C.
" 12.—The "New Cut Tavern," Lower Marsh, Lambeth, S.E.
" 13.—The "Ship," 228, East India Dock Road, E.
" 14.—The "Cock," 77, Long Acre, and 41, Drury Lane, W.C.
" 15.—The "Cross Keys," 42, Hampstead Road, N.W.
" 16.—The "Three Cups," 20, Princes Terrace, Walham Green, S.W.
" 17.—The "Dane's Inn," Holywell Street, Strand, W.C.
" 18.—The "Frankfort House," 24, Goswell Road.
" 19.—The "King's Cross," 290, Pentonville Road.
" 20.—The "Soho" 27, Soho Square, W.

The following tariff may prove interesting :—

Price List.

Cocoa, per small cup	½*d.*	Large plate of beef	4*d.*
Cocoa, per large cup	1*d.*	Small plate of ham	2*d.*
Coffee, per small cup	½*d.*	Large plate of ham	4*d.*
Coffee, per large cup	1*d.*	Seed and currant cake per slice	1*d.*
Tea, per small cup...	1*d.*	Bread and butter	½*d.*
Tea, per large cup...	2*d.*	New milk, per glass	1*d.*
Small plate of beef	2*d.*	Boiled eggs, &c., &c.	

The Company also supply lemonade, gingerade, soda water, and other aërated drinks, in bottles and by the glass, at 1*d.* and 2*d.*

N.B.—Non-alcoholic beverages 1½*d.* per bottle.

Working men may bring their own meals, and eat them on the premises.

Everything good and clean.

Out-door trade done. Customers bringing their own jugs or cans will be supplied.

A library, containing 1,000 volumes, is open on the first floor of the "Three Cups," on Tuesday evenings, from 5.30 to 7. Books lent at ½*d.* per volume.

Open from 5 A.M. till 11.45 P.M.

Rooms can be engaged at this and most of the taverns by temperance, friendly and other societies for their meetings.

Weekly lodgings for respectable single men to be had at houses Nos. 2, 4, 5, 9 and 17.

Visitors to any of the above-mentioned houses will find that they are well adapted for the purpose for which they are intended, being as cheerful, clean, and as commodious as circumstances allow, and vieing in these respects with ordinary public-houses. We would strongly suggest the inspection of the "Temple Arms," at the Seven Dials, where it holds its own with the gin palaces and taverns of this wretched neighbourhood. The perusal of the above list will show that the Company has not shrunk from pushing its experiments into the poorest parts of the metropolis; and it is satisfactory to know that it finds some of its best customers in those quarters. In addition to the above houses it is expected that four or five more will be opened before Christmas, 1879.

The London and Provincial Coffee Palace Company (Limited), the offices of which are at 282, High Holborn, is working mainly on the same lines as those of the Company referred to. It was

established very recently, and the Lord Chancellor is its President, the Earls of Harrowby, Albemarle, and Aberdeen, Lord Kinnaird, Sir Thomas Chambers, Mr. Samuel Morley, and other well-known philanthropists being among the vice-presidents. The Company has already five houses in operation :—

1.—The "Cabinet Makers' Arms," 113, High Street, Shoreditch.
2.—The "Canterbury Arms," 63. New Cut.
3.—The "Notting Hill Coffee Palace," 87, High Street, Notting Hill.
4.—The "Admiral Napier," Chapel Street, Islington.
5.—The "Engineers' Arms," 22, Old Street.

By March, 1880, the Company hope to have at least twelve in all opened. Then again there is the Coffee Palace Public-House National Society, whose offices are at 13, Warwick Street, Regent Street; and the Temperance Refreshment Houses Company, 35, Queen Victoria Street, the work of the latter association seeming to be chiefly in the direction of securing existing coffee-houses of the ordinary character and public-houses, and converting them into modern temperance refreshment houses.

The next organisation, an important one, to be referred to, is the Coffee Public-House Association, 40, Charing Cross, of which the Duke of Westminster is President. The general committee consists of more than seventy noblemen, Members of the House of Commons, and gentlemen of position well known as supporters of social schemes for the benefit of the poorer classes. An executive committee, of which the Honble. W. F. Cowper-Temple, M.P., is Chairman, undertakes the practical work of the Association, assisted by the able and energetic secretary, Mr. Frederick Gore. This organisation differs from the others already alluded to in that its object is not to start coffee public-houses of its own, but to assist the general movement for the establishment of temperance refreshment houses in London and elsewhere. This it endeavours to do in various ways, which may be condensed under three heads, as follows :—

"1. By bringing effectually before the public the necessity that exists for energetic, widespread, and concerted action, in order adequately to meet the requirements of the population, and to cope with the evils inseparable from the existing public-house.

"2. By collecting and diffusing the best available information with respect to the establishment and management of coffee public-houses, and by aiding, with such advice as accumulated knowledge and experience may suggest, all persons who desire to assist in promoting them.

"3. By inviting subscriptions and donations for the formation

of a fund to be applied towards the establishment of coffee public-houses in suitable localities, and for the improvement and development, where desirable, of those that already exist."

The funds entrusted to the Association are chiefly used in advancing loans, at a moderate rate of interest, to associations and individuals who are establishing temperance refreshment houses; and occasionally free grants to a small amount are made in exceptional cases, where it appears that such help is likely to bring about a good result. Thus the Association acts as a kind of central agency and "council of advice," to which all interested in this movement may turn for information, counsel, and help. By putting themselves into communication with it a waste of power and even failure may often be prevented in the case of persons desirous of doing good, who will through its agency obtain practical guidance for successful action. This Association is well worthy of support, as all great movements require something like a fountain head and general centre round which to rally.

Another public company well deserving of notice as furthering the cause of temperance is the "People's Café Company," many of the leading supporters of which are to be found among those of the previously mentioned associations. The Company was founded in 1874, and its head offices are at 16, George Street, Mansion House. Among its chief houses may be mentioned the Farringdon Street, the St. Paul's Church Yard, and High Street, Whitechapel, establishments. As, however, they seem to aim at supplying the wants of a class above that which is generally known as the "working class," we shall say no more about it here, as being a little outside or rather above the movement to which this article is devoted. Still as one of the agencies at work in the cause of temperance, and as an ably conducted and successful enterprise, it has our very best wishes.

In addition to the coffee taverns in and about the metropolis belonging to public companies, there are many which are the result of private enterprise; and among them specially worthy of mention are Mr. Lockhart's "Cocoa Rooms." He has opened several of them in the northern towns of England, and has now extended his operations to London, where all supporters of temperance will heartily wish him success, as he is universally recognised as one of the "apostles" of the temperance refreshment houses movement. The last of his "rooms" opened is at 161, Westminster Bridge Road. But a very considerable number of

coffee public-houses have during the last three years been established in London and the suburbs, by private persons who are interested in the movement, and in some instances by a few private persons in combination. In all or in almost all of these cases the founders and proprietors of the houses look for a moderate return of interest on the money they have sunk, but true Christian philanthropy has been the real motive power which has led them to take an active part in the matter. Among these establishments may be mentioned :—

1.—The "Edinburgh Castle Coffee Palace," Rhodeswell Road, Limehouse.
2.—The "Dublin Castle Coffee Palace," 39, Mile End Road.
3.—The "Royal Standard Cocoa House," Bell Street, Edgware Road.
4.—The "Rose and Crown Coffee Palace," Knightsbridge (opposite the barracks).
5.—The "St. Katherine's Coffee Palace," 156, High Street, Camden Town.
6.—The "Chimes Coffee Palace," Great Smith Street, Westminster.
7.—The "Victoria Coffee Palace," Canonbury.
8.—The "Welcome Coffee Public-house," Westow Street, Upper Norwood.
9.—The "Magdala Castle," Latimer Road, Notting Hill.
10.—The "Royal Oak," Acton.
11.—The "Star and Garter," Chelsea.
12.—The "Red House," Tottenham.

The first two on this list were established some years ago by Dr. Barnardo, and are well worth a visit, if only to observe how like a coffee tavern can be made to an ordinary public-house without being one in the sale of alcoholic drinks. Each and all the others will interest those who call in; and they will be found, generally speaking, on the model of the houses of the Coffee Tavern Company, though several in their general "appointments" are superior to them. One and all we believe pay their way, and in most instances are commercial successes. We do not give the names of their founders and proprietors, as probably the majority of them would not wish them to appear in public print.

As auxiliaries to the coffee public-houses, and conducive to the success of the movement, are the street stalls and barrows with their non-alcoholic refreshments. Many of them belong to the public companies already mentioned, and ply their work when the houses are closed at night and before they open in the morning. The Church of England Temperance Association is doing good service in this direction. The cabmen's shelters are also founded on temperance principles, and have been greatly appreciated by those on whose behalf they were established. Among these minor agencies may be especially mentioned the Kiosk and Coffee Stall Company, 40, Charing Cross. This Company was established only last year, and may be considered as coming before the public under the special auspices of the Coffee

Public-House Association, of whose work we have already given an outline. Its object is to establish kiosks, stands, stalls, rooms, shops, and other buildings, either of a permanent or temporary nature, especially in *places of public resort*, and thus it seems to occupy a field hitherto for the most part unworked. The first of its establishment was a kiosk recently erected in Hyde Park, with the permission and approbation of the First Commissioner of Works.

Such is a brief history of the temperance refreshment houses movement in London and the provinces, the rise and progress of which will ever remain a remarkable feature in the social reformation of the present era, whatever be its ultimate results. It is a matter for wonder as well as for congratulation that whereas about four years ago only three established companies were at work in the desired direction, the number now in the United Kingdom can be little short of seventy, if not more.

It is a matter also for satisfaction to know that this movement is not confined to this country. Its fame has crossed the seas, and in Switzerland and Holland, in the United States and Canada, and in our Australian Colonies it has already made considerable progress, and the day is probably not far distant when the coffee public-house, preserving its general character, but adapting itself with a certain elasticity of aspect and arrangement to the difference of climate and manners, will become firmly established at the Antipodes.

But while commending the excellence of the movement, and rejoicing in the success already achieved, and anticipating also its ultimate triumph, we must not be too sanguine of immediate results, or expect that temperance refreshment houses are about to effect a sudden revolution. They will undoubtedly form a considerable tributary, swelling the great stream of social progress which flows steadily onwards, fed from many different sources; but their influence is likely to be very gradual. It can hardly be expected that they will reclaim from actual intemperance many members of the present generation, for the drunkard of forty years of age has probably so injured his digestive organs, that stimulants have become a fatal necessity, and has habituated himself to spend so much on drink, that he cannot afford to buy the best and most easily digested food. These men must lie on the bed which they have made for themselves. But with younger men the coffee tavern may have the happiest effects. It is not meant, of course, that every man who

passes his evening at an establishment of this kind, instead of going to a tavern, must necessarily be a teetotaller. He may have taken his pint or his quart in the middle of the day, and be none the worse for it. He comes to the coffee tavern simply as a more rational, more wholesome, and more comfortable way of spending the evening, than by sitting for hours in a noisy and unsavoury public-house, drinking liquor which he does not want, and probably cannot afford. And it must never be forgotten that in any scheme for checking intemperance, no effort should be spared to discountenance drinking in the evening.

The promotion of evening sobriety will, therefore, be one of the great gains to be anticipated from the spread of these places of refreshment; and it is quite possible that an acquired taste for coffee or cocoa may lead a man in time to care less and less for anything else. On the utility of alcohol in repairing the waste occasioned by hard manual labour the doctors disagree. But it is certain that very hard work can be done for a protracted period by men who only take it seldom or not at all, as the recent performances of athletes in the rowing, running, and bicycling arenas abundantly testify. The greater facility for procuring non-alcoholic drinks of a good quality may probably lead the working classes to learn wisdom, and to find by experience that they can work as well and even better on them than on alcoholic stimulants. The coffee tavern, however, can only succeed if it is patronised by the working classes, and if it is so patronised it is fulfilling its existence. The same thing cannot be said of public-houses. Their commercial success is in inverse ratio to their moral expediency. But the proprietor of a coffee tavern will have the satisfaction of knowing that his own profits represent the improvement of the people, and that the richer he grows the more self-controlled are his customers becoming. But whatever the ultimate result of the movement, there will be the satisfaction of knowing that it has been tried, and that it has obtained the hearty support of many of the most eminent men of the day, who have the interests of their countrymen deeply at heart.

But the movement we have been speaking of is as yet confined almost exclusively to what we call "towns," and only a slight attempt has been made to extend it to villages. Let us then conclude with a few remarks in reference to the prospect of its further extension among small populations in the rural districts. The subject was brought before a meeting of the

London Farmers' Club last February, and received considerable discussion. The general feeling seemed to be that village clubs might be much more widely established than at present is the case; and really there can be no possible objection to their multiplication. By the term village clubs is meant institutions for agricultural labourers similar to those for working men in towns, and indeed to the clubs so intimately associated with the town life of the higher classes—in fact, rooms or complete buildings for the social intercourse, amusement, and recreation of the working poor of our villages after their hours of labour. The agricultural labourer is by nature a social creature equally with his fellows in towns; he enjoys society after his kind; he likes chatting over the events of the day, and indulging in local gossip; he is by no means averse to reading the newspapers where he can get them, and he appreciates his pipe more in company than alone; and it is but reasonable and fair that he should have proper opportunities for indulging his tastes, especially when they are truly legitimate, as his brethren in towns mostly have. But at present the only available centre where he and his village friends can meet on common ground and indulge in social intercourse is the village public-house, and it can hardly be said that this is a resort which tends to his improvement in mind, body, or estate. We have no wish to speak uncharitably of these institutions or their proprietors. Many of them are very well managed as far as the landlords can control their customers, and the landlords themselves are often among the most decent and respectable of the rustic community. But at the same time there is no disputing the evils associated with and resulting from the village inn. It is the resort of the idle and dissolute, as well as of the hard-working and respectable; of the drunken as well as of the temperate; in a word, of the bad as well as of the good, and the constant result is that the latter often though gradually drift into the category of the former. It is in the village public-house that poaching affrays are concocted, dishonest schemes suggested, bad language freely indulged in, and habits of drunkenness fostered; for, unfortunately, he who is most lawless, who uses the foulest words, and drinks the most, is the hero of the taproom. It is, therefore, a hardship that the more decent labourers, and especially the younger men and lads, who are more susceptible of bad influences, should have no common place of resort but that where evil predominates over good, and where there is the strong temptation for men to drink more than

they require, "for the benefit of the house," as it is called, or to give evidence of what are supposed to be their manly qualities. The village public-house but too often undoes the good work of the village school and neutralises the religious influences of the village church, and, therefore, surely any movement which might lessen its evil effects is most deserving of encouragement. But how and on what principles are village clubs to be founded and managed? Some of those already in existence supply beer to the members under certain restrictions, and some not. There is no reason, however, why village clubs should not prosper without alcoholic beverages being sold at them. Let there be good tea, coffee, and cocoa, and the men will soon find that they can do very well without stronger drink. Tobacco smoking should certainly be allowed, even if a separate room had to be provided for the smokers; for, whatever the anti-tobacco crusaders may say to the contrary, the moderate practice of smoking seems to be soothing to body and mind, conducive to health and even longevity, as countless instances both in town and country abundantly testify. Newspapers and periodicals should be provided, and the village library should have its head-quarters at the club. Games such as draughts, dominoes, bagatelle, and so forth should be provided when possible. Lectures and penny readings should also be organised—and in nine cases out of ten the incumbent of the parish and his friends would answer for these—and when they take place the wives and daughters of the members should be admitted. Indeed, it may be advisable that females should be members of these clubs as well as the males, though, of course, the movement is mainly concerned with the latter. These clubs should not be exclusively church clubs, but available for members of all religious communities alike; and some of their promoters hold they should be open on Sunday evenings. All members should pay a weekly or monthly fee; and the clubs should be based on a commercial principle, and sa far as possible be made self-supporting. The poor both in town and country do not take kindly to institutions which have too pronounced an element of charity in them, and, indeed, are inclined to resent what might be interpreted as a bribe to reform their habits. This, however, need not prevent the well-wishers of the agricultural poor and philanthropists in general, the clergy, the squires, tradesmen, and others with means in a village from directly or indirectly supporting the club, and especially in aiding its first establishment, which last matter

would, in the majority of cases, be the great difficulty. But when established the clubs must practically be self-supporting, otherwise there would be the evil of having a patron either in the shape of an individual or of the State, as has actually been proposed, and the working man would not feel that he was leaning on himself. Another question involving some difficulty is the management of such clubs. The essence of a club is that the members make rules and regulations for themselves, or depute this office to a committee which after all reflects the opinions and wishes of the majority of the members; and, moreover, the members of the committee are all of equal social standing. Now though working men in towns may be able fairly to manage their own club affairs, it can hardly be supposed that a village club could be well managed by a committee composed entirely of ordinary agricultural labourers. They would require some aid, and this must be supplied by the clergy, the tenant farmers, the local tradesmen, and others of a grade above the labourers. This element, however, in the committee need not be viewed as necessarily interfering with the practical independence of the members of the club. Penny banks and other provident institutions would probably flourish in connection with these clubs, as most members would each week find that they had saved a considerable number of pence, which otherwise would probably have been expended in paying for more drink at the public-house than they really wanted. It might be advisable that these clubs should not be opened till an hour or so after the closing of the day's work in the country, by which time the village public-house would have done what may be considered its most legitimate business.

We have ventured to make these suggestions as to the institution and management of village clubs, and to enter somewhat into details, with a view to increase public interest in the subject; but what is immediately required is something in the way of general organisation for the development of the movement. The chief difficulty in the majority of cases, as has been intimated, would be in providing capital for the building or purchasing suitable premises and other outlays in starting such institutions. The formation, therefore, of a central society, say in London, for promoting village clubs of a kindred character to the Coffee Public-House Association, and working like several other philanthropic societies, would seem the first step to be taken, or the multiplication of such distinct associations as that which has its head-

quarters at Ipswich, and operates throughout Suffolk. The time seems to have come for taking action, and the project is so excellent that it may be taken for granted that it would meet with a very large amount of support if fairly placed before the public. The assistance of the Legislature might, we think, be depended on if any such assistance were needed in removing legal difficulties which may be obstructive of the movement. Parliament also would probably be willing to consider any difficulties under which the general movement may labour in respect to the licensing laws, and facilitate in any reasonable way the establishment of temperance refreshment houses.

By way of postscript we think we shall be doing well to call public attention, and especially the attention of those interested in the Temperance Refreshment House Movement, to the fact that on November 1st, 1878, was issued, under the auspices of the Coffee Public-House Association, an illustrated monthly newspaper, called *The Coffee Public-House News*. The publication has shown a rapid growth of success as the movement itself has progressed. Among its contents will be found each month leading articles on the movement; descriptions of remarkable coffee public-houses; articles on the details of management and on the supply and preparations of food and drinks; descriptions of improved fittings and apparatus; correspondence and discussion; and a monthly review of the markets. It is published by S. W. Partridge and Co., 9, Paternoster Row; and may be considered the press organ of the Temperance Refreshment House Movement.

SOUTH AFRICA.

In one sense the most ancient, Africa is in another sense the most modern, of the quarters of the globe. The seat, in its northern portions, of the earliest civilisation known to authentic history, it presents at the present day, in its central and southern portions, the most interesting and important regions left for reclamation from barbarism. The history of the continent has indeed travelled continuously southwards, from the time of Carthage to that of the Zulu War ; and while its early chronicle will be found in the classics, and its modern in the newspapers, it has also a period of interest lying both geographically and chronologically between the two—the period of the discovery and settlement of its west, or west central coasts.

Of the glories of the first period of African history it is not necessary here to say much. What the world owes to ancient Egypt, though we may never define, we are at no loss to appreciate ; it is in every sense immense. But neither middle Africa in later times, nor modern and southern Africa in the present day, looks back to ancient and northern Africa, except through Europe. The ultimate triumph, after long struggles, of Rome over Carthage, fixed the centre of historical progress in Europe ; and to Rome was gathered the fruits of whatever there had been in northern Africa of human civilisation. From Rome the watershed line of civilisation trended gradually northwards and westwards, so that Africa was next reached by way of Portugal, England, and Holland, who discovered its middle coast, and established with it those trading relations which exist to the present day.

These West Coast Settlements, however, and the middle period of the continent's history, have a more immediate bearing upon its modern existence, and the southern tracts to which attention in the present day is chiefly directed ; for it was the Dutch who, after doing something for the West Coast, went south and became the parents of the modern African colonies.

In the last few years Africa has afforded all round a revival of interest. The resuscitation of Egypt is at the present moment a problem hardly second in the minds of statesmen to the never-ending "Eastern Question :" there are not wanting, indeed, signs that some of the more astute of our public men, while ostensibly occupied with Turkey, have modern Egypt really in

their thoughts, and believe it more important for England to keep hold on the shores of the Suez Canal than to nurse a traditional influence beside the waters of the Golden Horn. Further south, the central regions of Africa have afforded materials for much recent history. The journeys of Livingstone, Stanley, and Serpa Pinto, have cut lines of light through the "dark continent," and opened vistas through its dense forests, which reveal an almost unlimited scope for future progress. On the eastern coast Zanzibar is growing into importance, and is already an established centre of Christian missions into the interior, now penetrable from both sides. But it is to the south of Africa, the colonies of Cape Town, Natal, and the outlying connected regions, that attention has been chiefly directed of late years, and to the history of this section of the continent it is intended to devote a few pages in the "Companion to the British Almanac," by way of descriptive review of what has formed a not inconsiderable branch of the recent progress of the world.

South Africa, at the present time, consists of *Cape Colony* at the extreme south, a dependency of England with a Parliament and a regular Colonial Government; *Natal*, a smaller tract to the north-east of the Cape Colony, also an English dependency, with a less developed form of government: the *Orange River State*, and the *Transvaal*, inland tracts lying north of the Cape Colony, and possessing no seaboard, complete the great divisions which are avowedly in European occupation. Still in native occupation, unless the results of war effect an alteration while these lines pass through the press, is *Zululand*, so prominently before our eyes during the past year, and almost the only organised native state; and the land to the north-west of the Cape Colony is inhabited, though it can hardly be said to be governed, by various tribes of Hottentots and Bechuanas.

The chief of the present political divisions of South Africa is the *Cape Colony*. Geographically, its known history dates from the discovery of the Cape itself by Bartholomew Diaz, a Portuguese navigator. The Portuguese have been in past times, as is well known, great explorers by sea. A half-religious, half-avaricious spirit prompted their first expeditions, in the middle ages, to Africa, where they expected to find the mythical "Prester John," a supposed Christian king, ruling somewhere in its eastern regions. This quest, however, was soon abandoned; and the Portuguese discovered and took possession of piece after piece of African coast for the purposes of commerce. The real

"Prester John," so far as he was a reality, was found in the King of Abyssinia; but the appetite for discovery and annexation was not satisfied by this, and the Portuguese navigators advanced bit by bit along the western coast till Bartholomew Diaz, in search of a route to India, sighted the Cape, and called it the Cape of Storms. Looking at its discovery in another light, as revealing a prospect of the realisation of the long-looked-for route to India, King John II changed the name to that of the Cape of Good Hope. In 1497, Vasco di Gama, another Portuguese navigator, rounded this "Cape of Good Hope," and first sketched out to the world a rough outline of South Africa, by sailing northwards along the eastern coast to Zanzibar.

Some attempts were made by the Portuguese to settle in the neighbourhood of the Cape, but as the principal reason for so doing would be the establishment of a place of call on the way to the seats of their commerce in India, and they had a more convenient calling place in Brazil, the attention paid to the Cape was not very great. The colony was virtually founded in 1652 by the Dutch, who were then losing their hold upon South America, and perceived the necessity for an alternative halting place on the road to their possessions in the Indies. The Dutch had then considerable colonial possessions, and they established themselves on the slopes of Table Mountain by way of affording their ships a depôt on the voyage to the East. The natives surrounding this small possession were Hottentots, a feeble and diminutive section of humanity, quite incapable of organisation, and consequently of effectual resistance to foreign intrusion. So the Dutch had no great difficulties, though their occupation of the country gave rise to constant small feuds; and immigration from Holland took place to such an extent that the basis of the population of this part of Africa became Dutch, and is virtually so to the present day.

At the beginning of the present century the Dutch had extended their hold of the country as far as the Great Fish River, and westwards in an indefinite wavy line across the toe of the continent, so as to comprise an area equal to that of the British Isles.

In 1795, as an incident of the war then proceeding between England, France, Spain, and Holland, a British force seized the Cape Colony in the interests of the Prince of Orange; but it was restored to the Dutch in 1802 under the Treaty of Amiens, which aimed at settling the colonial possessions of the belligerent parties

on an abiding basis. The settlement, as is known to history, barely lasted a year; and one result of the renewed war which began in the following year was that the English seized the Cape Colony a second time in 1806, and we have held it ever since. In extending their possessions, during the latter part of their occupation, the Dutch had come into contact with other natives than the Hottentots; and when the British seized the region they found themselves with a reckoning to settle with the Kaffirs, the occupants of the eastern portion of the country. The Kaffirs are a tall, fine race of men, warlike and predatory, of Arab extraction; a great contrast, both in physique and morale, to the poor Hottentot, and by no means disposed to acquiesce in being ousted from their territory. Consequently the transfer of the Cape Colony from Holland to England was followed by a series of Kaffir wars, which were chronic from 1798 to 1852, but of which six are usually reckoned, those of 1812, 1819, 1828, 1834–6, 1846–8, and 1851–2.

It is important to a just appreciation of the moral position of England in South Africa to recite clearly the fact that the Kaffirs, of which race the Zulus are a section, are not the original inhabitants of the regions of South Africa. The Kaffirs may probably be described with virtual correctness as a negro race, modified by mixture with Arabs from the north-east of Africa. It is to the Arab blood that they owe their superiority—more and more evident as we go northwards along the east coast—to the ordinary negro. This mixed race, as old Dutch colonial records show, were, as early as towards the end of the seventeenth century, pushing their way south, displacing the feeble and unresisting Hottentots then in possession, who are still the class of natives with whom European colonists have to deal in the more westerly portions of the Cape Colony. In expelling or supplanting the Kaffirs, then, Zulus or other, we are not dispossessing original inhabitants so much as contending with a vigorous race of blacks for the ownership of tracts previously occupied by a third race. Taking the place of the Dutch in this counter-aggression upon the territory of the passive Hottentots—a race too low in the scale of humanity ever to have made the best of a fine country—we found ourselves at issue with the Kaffirs as rival conquerors rather than as aggressors upon them.

In the earliest of these struggles the Great Fish River was the line on this and that side of which the tide of war fluctuated. In 1811–12 this stream was the boundary of our dominion. The

Kaffir War of 1819 was precipitated by one of their "prophets," Makanna by name, under whom the Kaffirs penetrated to Graham's Town, but were there conspicuously defeated. For seven or eight years after, the European population were not molested, and occupied themselves in pushing forward Hottentots and a few colonists to the frontier as a precaution against future attack. An outbreak in 1828 ended in the Kaffirs being driven from the Kat River Valley; and Hottentots were again moved forward, under settlers of European origin, as buffers for the future, into the well-wooded and fertile district which is watered by this branch of the Great Fish River. A chief named Macomo was the leading figure on the side of the Kaffirs in this period of the struggle. The valleys from which the Kaffirs were expelled were settled with Hottentots and others by the London Mission Society. Of the next struggle, that of 1834–6, it is only necessary to say that its result was to drive the Kaffirs over the Great Kei.

Sir B. Durban, from whom the well-known port in Natal takes its name, was the English administrator concerned in this stage of the war. He settled the new frontier with *Fingoes* or *Amafengus*, a docile set of natives, of mixed origin, refugees from wars with fiercer tribes, or the offspring of captives reduced by such tribes to slavery. These Fingoes are an interesting section of the very mixed population of South Africa. Temporary slavery, or their origin from the less war-loving individuals of the Kaffirs—for the Fingoes are only Kaffirs separated from the bulk of their race—seems to have made them prudent and peaceful; they are quietly acquisitive, and have been called the Jews of South Africa.

The Kaffir War of 1834–6 cost upwards of a million sterling. The next outbreak in a struggle of which the latest phase was the Zulu War of 1879, occurred in 1846, when the Kaffirs overran the country as far west as Uitenhage and northwards to the Storm Mountains, before the settlers could bring solid resistance. Under Sir H. Smith, however, our disturbing rivals were once more driven back over the Great Kei, and what is now called *British Kaffraria* began its existence as a distinct dependency.

The next and last Kaffir War—the last, that is to say, unless we count the struggle with the Zulus as a continuation (as it virtually is) of the series—began in 1850, and had this unprecedented feature, that the hitherto docile Hottentot population, settled on the Kat River and thereabouts by the London Mission

Society and the colonial authorities, having got it into their minds that they were to be dispossessed of their farms, made common cause with the Kaffirs, expelled the missionaries, and joined in the invasion of the European settlement. Repulse followed, after a struggle of some length, and under the administration of Sir George Grey, the power of the Kaffir chiefs was so broken up and the country so planted with European settlers that peace was permanently secured. This result was much accelerated by the impoverished condition of the Kaffirs, who had killed their cattle at the bidding of one of their "prophets."

British Kaffraria, thus originating, is one of the finest of our small dependencies, an area of 4,500 square miles, bounded by the Great Kei, the White Kei, and the Keiskamma Rivers, and the Amatola Mountains, a picturesque range running from 4,000 to 5,000 feet high. On the south-west border, across the Keiskamma, is Albany, a province of Cape Colony; over the Great Kei, on the north-east, is Independent Kaffraria, a region still nominally held by its black conquerors; on its south-east British Kaffraria has the Indian Ocean. Inland, on the north-west, among the Amatola Mountains, are fertile valleys and table lands, affording fine grazing ground; but the rivers, like those of nearly all South Africa, are unnavigable and intermittent. In 1859 farms of 1,000 to 3,000 acres were carved out and allotted to settlers; in 1861 it was declared a colony by letters patent, the Governor of Cape Colony being appointed its High Commissioner, and its administration more immediately superintended by a Lieutenant-Governor. After the Crimean War the German Legion, raised by England as auxiliaries, received grants of land in British Kaffraria, and were added to the European population. One of its towns is called Berlin, another Hamburg. The capital, King William's Town, contains some 3,000 inhabitants. There is a port, East London, at the mouth of the Buffalo River, and a railway thence extends inland to Queenstown, with a branch to King William's Town. In 1868 this fine territory was more definitely annexed to Cape Colony, and ceased to have independent existence, except as a province of that dominion.

The colonies of England are divided, officially, into three categories, according as they are more or less closely attached to the mother country in their administration. In Crown colonies, so-called, the English Sovereign controls all legislation, as well as administration, through the Colonial Office at home; a second class of colonies has representative institutions, the Crown re-

serving a power of veto as to legislation, and retaining the control of all public officers; in the third category are those colonies which have responsible self-government, the Crown reserving a veto on legislation, and sending a Governor, but having no detailed administrative control. The Cape Colony is in the last of these categories. In its present condition, the Cape Government rests mainly upon a "Constitution Ordinance Amendment Act," passed by the Colonial Legislature in 1872, for "the introduction of the system of executive administration, commonly called Responsible Government."* The executive is composed of a Governor appointed by the Crown, and an "Executive Council" of officers appointed by the Crown; the legislature consists of two Houses, the Legislative Council and the House of Assembly. These answer roughly to our House of Lords and House of Commons, except that both are elective, the principal difference being that, for the Legislative Council, a qualification of landed property worth 2,000*l.* is requisite, or other property worth 4,000*l.* The voters who elect both Houses must have property, salary, or wages of at least 25*l.* a year. The Governor is Commander-in-Chief, and has certain other functions as "Her Majesty's High Commissioner." His Ministry consists of five members.

Society in the Cape Colony consists of the English administrative staff, recent English settlers, the descendants of the older Dutch, German, English, and some French settlers, Hottentots (who have perhaps the best claim to be considered aborigines), Kaffirs (believed to be partly of Arab blood, and to have encroached upon the aborigines from the north by the east coast), some Malays, introduced as labourers, and Africanders, the offspring of black women and Dutch fathers.

Wool is the most important article of production and export; ostrich feathers are another valuable produce. Most of the colony's exports come to England and in return are sent chiefly manufactured articles of clothing.

The colony next in importance in South Africa to Cape Colony, and most directly concerned in the just concluded Zulu War, is *Natal;* though, as has been hereinbefore suggested, the Zulu War was but a supplementary Kaffir War, and, as such, must have deeply engaged the interest of the colony of Cape Town. It was a struggle for possession of land with the same race as

* "The Statesman's Year Book."

opposed European occupation in the six Kaffir Wars of 1812 to 1852, only in a more northern tract of the continent.

Natal has a history now approaching a period of four centuries. But of this more than three present but a blank to the chronicler; for, though discovered by the Portugese in 1498 (on Christmas Day of that year, whence its name), little was heard of it till, in 1822, it was visited by certain white traders from the Cape, whose "prospecting" led to some immigration of Dutch Boers from the last-named colony. Natal was then the dwelling-place of a mixed Kaffir and negro race, the Zulus being the principal section. Chaka, the paramount chief, ruled after the usual African fashion, by frequent official slaughter; and though the population were superior as men to the West Coast tribes of Africa, their government and manner of existence were much the same, and their claims to occupy the country as little merited serious consideration from a humanitarian point of view. Chaka was, in fact, a bloodthirsty monster, of the Ashanti or Dahomey type, ruling a population of the same habits, though of a superior intelligence, derived, it is believed, from the ancient admixture with Arabs from the north of the continent already referred to. Chaka, usually regarded as the founder of the Zulu power, was killed in 1838, and succeeded by his brother Dingaan. Meantime the Dutch from the Cape had immigrated in some force to Natal; and a party of these, bent upon a negotiation for land, having been treacherously murdered by Dingaan, the white settlers deposed him, and set up his brother Panda; themselves, to a certain degree, ruling the territory in Panda's name. Chaka and Dingaan had trained their subjects to habits of depredation, war, and slaughter, by which means desolation and murder were carried into the interior, and the less formidable African tribes massacred at intervals. It was the possession of firearms which enabled the Dutch settlers in Natal to overcome the hordes of the Zulu tyrants.

The colony of Cape Town having become British, as already detailed, it was only to be anticipated that Natal, taken possession of by emigrants from the Cape, and therefore British subjects, should be claimed by England: the Dutch settlers resisted awhile, but Natal was proclaimed a British colony in 1843, and has since shared with the Cape the influx of Englishmen and Germans which has followed English possession.

Natal has for one of its frontiers the Indian Ocean, and upon

its seaboard is one good port, Durban; this, however, has a "bar," which prevents very large vessels from entering. None of its rivers are navigable, though not, like some further south, habitually dry in summer altogether. Zululand lies upon the north-east, over the Tugela river; the Quathlamba or Drachenberg Mountains separate it, inlandwards, from Basutoland and the Orange River State. Its extent is about 25,000 square miles. In many respects it is a very fine country. For about twenty-five miles inland from the coast the climate is sub-tropical, and the produce corresponding; a middle district grows corn much as in Europe, and the higher portions, under the mountains, afford immense tracts of pasture. It is nowhere specially unhealthy, as most African districts are, and Europeans thrive freely in its atmosphere. There is considerable timber in places, and the mineral wealth of the mountain districts is ascertained, though not yet realised. Its only railway is one from Durban to the capital, Pietermaritzburg. Its seaboard is as yet imperfectly explored in a hydrographical sense, and may yet be found to possess good landing-places and safe anchorages. An effort was made during the Zulu War of last year to use a reputed good landing-place, Port Durnford, but it proved of little value, everything having to be got ashore in surf boats; and an attempt of Sir Garnet Wolseley, the general sent out to take supreme command, when Lord Chelmsford's military measures appeared not to promise speedy success, had to be relinquished, after taking him out of the way of active warfare for perhaps the three most critical days of the campaign. Two of Her Majesty's ships, present off the coast during the war for the purpose of assisting in the operations, got aground, owing, it is said, to the non-existence of accurate charts of the neighbouring waters.

Her Majesty's rule over the colony of Natal is exercised by a Lieutenant-Governor, subordinate to the Governor of the Cape Colony. In the population the blacks, who may be described as domesticated Kaffirs, are in the proportion of ten to one white man; these latter are two-thirds of English origin, and the rest either German or descendants of the Dutch immigrants from the Cape. The large proportion of blacks naturally gave rise, during the critical time of 1879, to much anxiety, but in no case was there any trouble with this section of the population—a fact which augurs well for the future prospect of the entire South African region, ndicating, as it does, that under European guidance the Kaffir, however savage and formi-

dable under the *régime* of such monsters as Chaka and Panda, becomes tractable, peaceable, and useful. The same fact carries with it a powerful force in favour of the position taken up by Sir Bartle Frere, the representative of the Queen in South Africa during the war, which was that the future of the South African colonies needed not indeed the extermination of the Zulu Kaffirs, but the dissolution of their military organisation; freed from which, it was his reasonable contention, they would make excellent British subjects.

Natal, which grew out of the Cape Colony in the manner already sketched, became a separate colony in 1856, and has representative institutions, though not responsible self-government. There is a Legislative Council as well as an Executive Council; the former consisting of 13 official and 15 elected members. Its society and condition are very much the same as those of the Cape. The colony was established without cost to the Imperial funds; but the military expenditure is borne by England, the colony contributing a fixed sum. Sheep's wool, as in the case of the Cape, is the principal export; others are sugar, ivory, and hides of cattle. The growing of cotton was tried; but the exports of the raw material to Great Britain, after reaching the value of nearly 30,000*l.* in 1871, fell to less than 200*l.* in 1876.

It will have been seen that the Colony of Natal owes its establishment to Dutch emigrants from the Cape: the same is the case with two other districts of South Africa—the Orange River State and the Transvaal. Previous to the Kaffir War of 1855–6, the district between the Orange and the Vaal, now known as the *Orange River State*, was sparsely peopled by a mixed African population, partly Bushmen, partly Zulu refugees from the tyrants Chaka and Dingaan. After this war, an epidemic of disaffection took possession of the Dutch Boers of the Cape Colony, and an exodus took place, overland, across the Orange River territory to Natal. A large proportion of the emigrants, however, remained on the Orange River, and there established a republic of farmers. The rest went on to Natal; but this district having, in 1843, been declared an English colony, the Dutch farmers again resented a transfer of allegiance, and retired in considerable numbers back upon the Orange. Their disaffection resulted in a petty war, as the end of which, in 1848, Sir H. Smith annexed the region to the British Empire, under the name of the Orange River Sovereignty. Six years after,

nevertheless, it was given back to the Boers, who reconstituted their Republic under a President, with two Houses of Legislature.

The Orange River district, a space of about 50,000 square miles, consists of a general slope from the Maluti Mountains to the valley of the Vaal, this general slope being varied by undulations, and occasional rocky hills called "kopjies." Its vast plains afford excellent pasture. On the Natal side the mountains do not slope; the traveller "finds himself on the edge of an immense mountain chain, with the coast region several thousand feet below, extending to the Indian Ocean." There is in this State a majority of whites, who are about five to four, the minority being the mixed Africans already referred to. In and around the Maluti Mountains the Africans still maintain a sort of independence, the Abasutus, or Basutos, retaining a tribal organization. Their Chief Moshesh was, a few years ago, an object of a certain amount of romantic interest. The Dutch Boers, who founded their republic in a spirit of sulky disaffection, are a slow, morose set of men, still inhospitable to English strangers, and still cherishing their traditional grudge. Great ignorance prevails among them; they profess for the most part the Dutch Reformed faith, but the English Church has a footing in the region, and English immigration is greatly modifying the population. Unlike some parts of the South African settlements, the Orange River State has good roads; it is, however, entirely land-locked, and no doubt will be, sooner or later, united to the English colonies.

When Sir H. Smith, in 1848, as already recited, annexed the Orange River State to the British Crown, many of the Dutch Boers, prompted by an ineradicable disaffection, left this country also; and, migrating further inland, took up their abodes across the River Vaal. There, as on the Orange River, they founded an independent polity, under the name of the *Transvaal Republic.* The Transvaal is a region of some 70,000 square miles, chiefly a plateau from 4,000 feet to 5,000 feet above the level of the sea, out of which rise, however, numerous peaks and mountains to an elevation double that of the plateau. On three of its sides, the west, north, and east, the Transvaal has still uncivilised African tribes for neighbours, those on the west being the Bechuanas. On the south the Transvaal is bounded by the Orange River State.

The Republic of the Transvaal has not had a long life.

Hemmed in on three sides by African tribes, with no seaboard for commerce, and leaning upon European neighbours on one side, its settlers found themselves less able to keep up an independent Government than their fellow Dutchmen on the Orange River. They quarrelled among themselves, on slight religious points, and the north-eastern portion, after a while, declared itself a separate State. Ignorance and stolidity prevailed, and inhospitality was conspicuous, amongst the isolated settlers; public spirit had degenerated into the parochial spirit, and the settlement exhibited all the faults of a petty community uncorrected by foreign intercourse. In 1877 the condition of the Transvaal came to a crisis, which was solved by its annexation to the Cape Colony, and through it to the British Crown. Of its present condition we have numerous recent descriptive accounts in books of travel, and what are becoming sources of more and more universal information, the published letters of the able observers sent out to scenes of war by the English newspapers. Its landed proprietors are mainly Dutch farmers, children of those who migrated thither in disgust at British annexation of their former homes, with a few English settlers. Between the two there is no great cordiality; English travellers say that the few English farms are always distinguishable by their superior condition, and that the Dutch farm is usually the home of an untidy husbandman, and an inhospitable individual. The manual labour is done chiefly by the Kaffirs, who are obedient and useful, occupying a position just above slavery. Improved roads are the great want of the country; from the bad condition of these, all things but necessaries produced by agriculture are very dear, having to be dragged up country by long teams of oxen in waggons, over tracks almost indiscernible, and frequently lying across deep rocky beds of intermittent streams, alternately dry, muddy, or full of water.

In its present state the Transvaal affords great room for development. A new country, it may be added, necessarily does, to be of any value to mankind. There are in this young but fine district about ten towns, inhabited by white men, or rather ten villages which are on the way to becoming towns. The capital is Pretoria, where is a Parliament House, consisting of a one-storey building of eight rooms, roofed with thatch. The "Government House," or residence of the head of the executive, reaches, however, the dimensions of fourteen rooms, with stabling for six horses. The churches are small, and the hotels are cottages, or galvanised iron

houses, which take in strangers. Only four dwellings in Pretoria have a second storey; and most of the houses have but two or three rooms. In the capital itself the majority of the inhabitants are English. In the old capital, Potchefstroom, the Dutch element is stronger, but here also there is a good admixture of English, and the language of each of the two nationalities is commonly spoken. A large section of the Potchefstroom people are Africanders, or descendants of coloured women and Dutch men. Heidelburg and Rustenburg, other leading places, are still more Dutch, and the inhabitants disaffected to English predominance. Utrecht, a village which figures prominently on the map, has about one hundred inhabitants. On the whole, about half the dwellers in the Transvaal are of English origin or connection. These seem calculated to supply the enterprise which is wanting in the Dutch element, though to this latter must be credited that patient, plodding application to the soil which is a necessary ingredient in the early society of a successful colony. Ecclesiastically, the Dutch Reformed Church is predominant in the Transvaal; the English Church has been planted there, and a first Bishop appointed. The Dutch Reformed Church is Presbyterian.

The old Boer spirit of disaffection to British rule, upon which the Transvaal was founded, is not yet extinct. During the Zulu trouble of 1879 it displayed itself in words and demonstrations, though not in actual resort to armed resistance. At one time during the crisis the movements of a portion of the English troops were made with a view to overawe the discontented spirits, and there was considerable administrative trouble with the section of the inhabitants who desired to recover independence. The sentiment is not to be wondered at, and history shows how long such feelings may be cherished quite independent of their wisdom; but in most instances more material considerations gradually prevail, and there is little doubt that the Transvaal will become reconciled in time to the absence of an independence which would in all probability be the greatest possible hindrance to its progress.

Not the least interesting, though so small, amongst the South African communities, is that called *Griqualand*. The Griquas are descendants of Dutch fathers and Hottentot or Bush women. Their features bear the impress of their mixed origin, and they are also known as Baastaards. From 15,000 to 20,000 in number, they occupy a small territory west of the Orange River State, and north of Cape Colony. The Griquas are only partly Christian, and are practically, though not in name, governed by

European missionaries. The more civilised succeed well as agriculturists. The Griquas are not the only people of the same mixed origin. Tribes of bastard parentage exist along the northern borders of Cape Colony, and are described as, in point of civilisation and appearance, little inferior to the ordinary Dutch Boer, while they are much superior in energy to the African Hottentot.

The unmixed coloured population of South Africa survive now chiefly in the Hottentots called Namaquas. These are a tall, well-made race, thinly occupying, in a nomadic way, the region of about 100,000 square miles called *Great Namaqualand*, which lies to the north-west of Cape Colony, extending north to Walfisch Bay, a place of which the British took possession two or three years ago. On the south the Orange River divides Great Namaqualand from the Cape territory; a district of the colony called Little Namaqualand lies adjoining, and was formerly part of the tract called Namaqualand simply. Great Namaqualand is a sample of that part of Africa which can never become a home for Europeans. Nearer the Equator than Cape Town, though occupying about the same latitude as the Transvaal, it does not enjoy the same elevation, and its climate is well nigh insupportable to the white man. Except in its northern parts, where the country rises into plateaus of the same kind as those of the Orange River State and the Transvaal country, it is sterile and barren, its sandy downs baking in the sun when not enveloped in the mists which arise from the Southern Atlantic. Virtually it is a continuation westwards, with some modification, of the great Kalihari Desert of the interior. The Great Fish River (not the only one of that name) waters a portion of the tract, but is intermittent, and therefore, humanly speaking, of little use; the coast line is broken by scarcely a single stream debouching into the ocean. The water is brackish. Such at least is the description of this region which travellers to the present time have afforded; and, although the country is full of animal life, and sustains cattle, it is not in this direction, unless further exploration shall reveal portions of a more favourable conformation, that European occupation of South Africa is likely to extend. The Hottentots who wander in it, and who are of the best type of their race, will probably find a refuge in Great Namaqualand, which will remain to them for centuries after coloured men have been ousted from all ownership of the more temperate tracts on the eastern flank of this quarter of the globe.

Such being the general condition of South Africa, in its several divisions, as existing a year or two ago, it remains to chronicle the events of the last year, which was characterised by another crisis in the history of its European occupation.

It is easy enough to see, in a general way, how the Zulu War of 1879 came about. Zealous writers in party newspapers, and political speakers in public, may have attributed it to this or that man's policy, or particular acts of administration; but it is of little moment what person, if any in particular, or what administrative act, brought about the state of war; the struggle was one of those which are necessarily incidental to the position of people who settle in a land already occupied by another race. From the published documents laid before Parliament it appears that for years past the Zulu army had been growing into a more and more developed organism, under the hand of the crafty and vigorous Cetewayo, who, whatever his character, must be admitted to present a good specimen of his type. Under his government the masses of Kaffirs who formed his subjects had gradually been compacted into a nation which was an army. In this respect Cetewayo, the barbarian king, might be said perhaps only to have done in his way what more civilised States have aimed at, even in Europe. But the object of the Zulu military organisation was not defence, but aggression; and not aggression in a particular direction, or with a special object; it was an organisation for the purpose of carrying on chronic war, according to the African habit, on any neighbours whose possessions might be worth stealing, and could with safety be stolen. It was a monster whose food was blood, and to which food must be supplied. Its distinctive fundamental principle was that no man should marry till he had "washed his spear;" and opportunities of "washing spears" in the blood of some or other of the neighbouring peoples must therefore be found at any cost. In the phrase of Sir Bartle Frere, the Governor of the Cape, to whom the Zulu War is undoubtedly due, and who has no reason to shrink from the responsibility for it, the Zulu army was "a celibate manslaying machine." All armies, indeed, are manslaying machines, and most of them favour celibacy: thus to describe that of Cetewayo was, perhaps, to miss the mark, though the description be true. The really distinctive feature of the Zulu army, and that which made the Zulu power an intolerable neighbour, was that it existed for the sake of killing, and required war as a pábulum. There was, indeed, no reason to think that

Cetewayo would lightly select the Natal colonists and the Zulus who dwell among them as victims to the necessity for his young warriors washing their spears; he was shrewd enough to perceive that this would be a step of which the success could only be momentary, and the ultimate consequences ruinous. But in such communities as the Zulus a king is king to-day and murdered to-morrow; and hordes of yelling savages, anxious for the slaughter which will entitle them to wives, do not always count the future cost of a tempting onslaught. Beyond all question the existence of Natal, for some years before 1879, was at the mercy of the Zulus.

It was only a natural and logical consequence of this position of matters that the Zulu King should be summoned, as he was, by Sir Bartle Frere to dissolve his military organisation, and thus enable the neighbouring colonists to sleep in their beds in peace. Either the Zulu army, or the colony of Natal, followed perhaps by that of the Cape—for savages have a wonderful faculty for overrunning half a continent in a few years—must cease to exist. The crisis might perhaps have been staved off, at the cost of keeping up in the English possessions a constant state of preparation for war, and submitting to a condition of chronic apprehension, which would have crippled colonial progress; but sooner or later the question must be settled whether the black man or the white man was to rule in these regions.

It has already been stated that this was not a question between invaders and aborigines, but only between earlier and later encroachers upon a land held, before the appearance of either Zulu or Englishman, by a race too low in the scale of humanity ever to make reasonably good use of the gifts of nature in a favoured region. Nor could it well be considered that the Zulu power was worthy of being upheld on its own merits. What the past government of the unfortunate Zulu Kaffirs has been under their native tyrants is sufficiently ascertained, though perhaps not sufficiently known. It is scarcely more reasonable to sympathise with self-government among the Zulu tribes than to wish well to the barbarous polity of the King of Dahomey, with its periodical customary massacres, and habitual obscenities. For the clear good of both races—for whites and for blacks—it was desirable that issue should be joined, and the supremacy of the white man established. History, as Sir Bartle Frere told the home authorities, showed that an inferior race might with advantage live side by side with a superior, but not till the dominance of the latter had been conclusively established.

The summons served on King Cetewayo to break up his army organisation did not result in his submission, and the struggle which colonial statesmen had long foreseen was precipitated. A campaign was undertaken, of which the principal incidents are fresh in the memory, especially as they yield to no chapter of history in stirring circumstance. The year 1879 had hardly opened when our troops in Zululand met with a cruel but picturesque disaster. Watching their opportunity with the keen eyes of savages, Zulu warriors fell in overwhelming numbers upon a camp of English soldiers and their coloured allies at Isandula, while the main body of the column to which the camp belonged was scarcely a day's march distant, and destroyed the force. A few men escaped, and carrying the news of the disaster to a neighbouring camp, where again our numbers were few, prepared it for organising, at a few hours' notice, and sustaining with a scarcely credible pertinacity, the defence of Rorke's Drift against odds which only English officers would not have regarded as justifying despair.

These startling occurrences, while they produced a natural emotion at home, revealed to the military leader, Lord Chelmsford, the one most formidable quality of the Zulu enemy, their astonishing mobility. In this quality our own army was necessarily as greatly deficient. Naked savages, with skins proof against sun and rain, and feet of leather, are not hampered with questions of transport; and it was chiefly a question of transport into which, in a strategic sense, the Zulu campaign developed.

In the invasion which opened the military operations, a column of troops, under Colonel Pearson, had crossed the Tugela and marched in the direction of Ekowe. The dash of Zulus upon the camps at Isandula and Rorke's Drift revealed the fact that masses of the coloured enemy might not improbably fall upon this column; which, moreover, had begun to suffer from the difficulty of furnishing it with supplies of food. Pearson, in short, was shut up in his position at Ekowe, unable to emerge from his entrenched camp for fear of being exterminated by the large force of Zulus now found to be at hand, and barely able to sustain himself till help could come. It became now the first object to relieve Pearson. Communication was opened with him by signals consisting of flashes of sunlight reflected by mirrors; and preparations, rapid and complete, were made for dispatching a strong column to him with food and reinforce-

ments. The relieving column came into collision with the threatening force in the battle of Gingilhovo. It had intrenched itself, in accordance with a lesson taught by the disaster at Isandula, where the camp had not been entrenched; and the savages dashed themselves against the entrenchments only to be decimated by the fire of the better armed men within, while the latter sustained losses literally trifling. By the battle of Gingilhovo, fought a few miles only from him at Ekowe, Pearson was relieved.

Lord Chelmsford was now free to resume movements other than those directly dictated by the enemy; and commenced steadily to prepare for attacking and destroying the most tangible centre of Cetewayo's power, his kraal, or camp, at Ulundi. Prudence and patience were necessary. The difficulty of feeding his men, and keeping up the supplies of other necessaries than food, was great, owing to the absence of roads and the paucity of means of transport; time after time minor changes of plan had to be made, prescribed by the necessities of carriage in a half explored country and a strange climate. Meanwhile onlookers became impatient, and not knowing all, began to criticise the General's conduct of the war, and question his capacity. Impatience was shown at home, and the Government began to look around for a man who might be expected to carry the campaign to an earlier issue. Sir Garnet Wolseley was available; in conducting the war against the Ashantis he had done something of the same kind successfully before; so Sir Garnet was sent out, not to supersede Lord Chelmsford, but to direct him in the undertaking of reaching and destroying Ulundi, so parallel a task to that of reaching and burning Coomassie, which Sir Garnet had so admirably accomplished in the same continent a few years before.

Meantime another startling incident of war occurred. The only son of Napoleon III, the dethroned and dead Emperor of the French, had gone into Zululand attached to the staff of our army in search of a military reputation, which alone could qualify him for adequately filling the position of heir to the Napoleonic legend. One day this youth set out on a detached reconnaissance, and, with two or three private soldiers, was killed by Zulus. With him perished Bonapartism, and consequently a grave danger for a great European country disappeared; but it was impossible for men, however much they might appreciate this as a gain to the prospective peace of the world, not to be deeply moved at so romantic a death, and especially at so

cruel a blow as it was to the young Prince's mother, the widow Eugénie. Had three troopers been killed in the reconnaissance instead of two troopers and a Prince, no doubt the occurrence would have been forgotten in a week, even if reported at all in the Commander-in-Chief's despatches. But the death of so important a personage as the heir to the hopes of French Imperialists moved the less wise of men so that their emotion overleapt the processes of reasoning, and it seemed to be demanded that some one should be punished. In the heat of the hour, Lieutenant Carey, an officer attached to the party sent with the Prince, was tried and condemned by a martial court as answerable for the fatality; in the cool of subsequent reason the verdict of the martial court was set aside.

Sir Garnet Wolseley took with him to Natal at least one idea: it was to repeat in Zululand the measure by which he had enabled his soldiers to advance and conquer in the Ashanti country, the employment, namely, of natives to fetch and carry while the Europeans did the fighting. But Sir Garnet had no occasion to test the efficacy of the plan; for before his action was sufficiently developed to affect the course of the war, Lord Chelmsford had got his force, by safe stages and with ample reserve of supplies, within striking distance of Ulundi, and the campaign came to an end with a decisive battle in the vicinity of the King's kraal.

Success having at length resulted from the patient operations of Lord Chelmsford, that for a time despised Commander-in-Chief found himself the object of popular attention, which he, in his turn, must have witnessed with contempt, though not, if he knew men well, with surprise. While the game of war between him and Cetewayo was still undecided, and the capture of some pawns and a few more important pieces on the military chessboard seemed to indicate at least an uncertainty as to the result, colonial society—not to mention society at home—had nothing better than impatient tolerance for Lord Chelmsford, who was admitted to be a gentleman worthy of respect with a readiness which indicated the opinion that he was little more, and certainly not a military genius. The commander, bringing at last his slowly matured measures to bear upon the enemy, scattered Cetewayo's hordes at Ulundi; and then there was no general like him; he had worked patiently towards a great end, and had achieved it, and those who had ventured to criticise his conduct of operations suddenly found themselves liable in turn

to public indignation. Calmer and less immediately interested spectators at home saw in Lord Chelmsford, not indeed a man of special military genius, except under the definition that genius is "capacity for taking infinite pains." In the true spirit of Wellington, and of the traditional English strategy, Lord Chelmsford, instead of excogitating an ingenious plan of campaign, went about war in the English business-like way, gradually preparing the various direct means for a direct end, and presently bringing them to bear in a direct and overpowering attack. This, too, the critics at home and in the colonies began to see, or thought they saw, as soon as the campaign issued in the success of Ulundi; and Lord Chelmsford, but lately never mentioned without a sneer or an expression of pity, was drawn into the capital of the colony he had saved by men harnessed to his carriage as horses.

It is difficult, in view of the facts recited above, to understand under what motive, except exigencies of that party spirit which opposes whatever the opposite party does, the Zulu War of 1879 could be made a grave subject of reprehension. It is pretty obvious that the one alternative to conquering the Zulu power is to abandon the colony of Natal. No security, such as is necessary for development, could be ensured to that colony, if indeed to Cape Colony itself, with its borders infested by hordes of savages whose normal occupation was war for war's sake, and whose daily thirst was to "wash their spears" in the blood of other men. If human society is to sustain itself, professional destroyers of men, whether individuals or masses, must be restrained. Agglomerations of murderers are not the less murderers because they are agglomerated; and society must save itself from such by agglomerations of punishers and restrainers. Sir Bartle Frere, as already mentioned, called the Zulu army a "celibate man-slaying machine;" and some retorted that the same description might with substantial accuracy be used of our own. But the savage African tyrant slays men for the sake of slaughter, or at the most for a few cattle; whereas the man-slaying machinery of England was brought into use only for the preservation of the lives of a peaceful majority menaced by a barbarous nation in arms.

Fortunately for the future of South Africa, the Kaffir, Zulu or other, is teachable and tractable under a rule which aims at teaching and training. Formidable in war, the Zulu is eminently intelligent and useful in peace. He falls into domestic life with

the white man, not as a mere slave, but as a strong and reasonable subordinate.

The Zulu army, dispersed, if not conquered, at Ulundi, broke up into smaller fragments than could offer much further effectual resistance to our troops; and Sir Garnet Wolseley, sent out while the crisis was still a military one, and in virtue of the reputation he gained in dealing with the Ashantis, found himself with a political problem before him—pacification and reorganisation of the Zulu territory. Acting upon an estimate of the Zulu character formed by observation of the condition of his fellows in Natal under white predominance, Sir Garnet rightly approached them not as incorrigible savages, but as tameable warriors, putting forward, in his conference with their assembled chiefs, motives for submission which might have been held out to a reasoning European. "Tell them," he said to the interpreter, "that the military system and the laws which Cetewayo established, and which prevented the young men from marrying and becoming rich, as the Zulus in Natal are, must cease. In accordance with their own customs and with those of every nation in the world, it would be our right, if we thought fit, to annex the whole of the Zulu country, but we do not seek to take a foot of their territory, nor to deprive them of their property. But in order to restore peace it would be necessary for every man to lay down his arms. Tell them that, in order to prevent the establishment of the military system which had worked such evil, it is my intention to divide the country into five or six districts, each of which is to be ruled by an independent Prince, carrying out their own customs and laws, in accordance with old Zulu practice. Tell them that every man must have a fair trial before the Indunas before he can be punished." Then came another promise, which will hardly last good against the wear and tear of time and the inevitable pressure of circumstances. "Tell them that henceforth Zululand is to be reserved for the Zulu people; that white men are not to be encouraged to come into this country; and that it is the intention of the Natal Government not to recognise any transfer of land to a white man."

It is impossible to believe in the practicability, if we admit the sincerity, of this last promise. To prevent the acquisition of land by white men in the districts at present occupied by the Zulus is to stifle progress; for the acquisition of land is the one great attraction to European settlers, and to discourage the settling of civilised man amongst savages is to keep the savage

back in the march of improvement. Nor is the division of the country "into five or six districts, each to be ruled by an independent Prince," a measure more likely to stand. Who is to prevent the five or six independent Princes from fighting each other? Who, moreover, is to prevent them from renewing the contest with the white man, and overrunning Natal? No one but the English power; and then there will be another Zulu War. But even supposing peace to result, how long will the colony of Natal maintain a prohibition which in effect condemns it to be a dwarf amongst countries, and stunts its existence? Corporate human nature must change, and the course of all history be reversed, if a colony placed in such a position, on the side of a barbarous nation, continues long to limit the enterprise of its own people, and to systematically assist in maintaining intact the organisation of a rival barbarian polity on its own outskirts. Expansion is the irresistible law of a healthy colony planted in a vast area; and if the exclusion of white men as proprietors from Zululand should last while these lines are going through the press, it will be chiefly because of the temporary exhaustion of war. In a few years Sir Garnet Wolseley will be gone, the English Ministry who instructed him will be gone, the motive for making such promises will be gone; but the motive for European extension will remain, and it is inevitable that Zululand will be settled with white proprietors and gradually assimilated by Natal. Perhaps this may not take place while the present relations of our South African possessions to the mother country remain. But an invitation to confederation has already emanated from the Colonial Office at home; confederation will come in time, with it further independence of England, and then the self-interest of the colonies must prevail against such obstacles as specious promises not to encourage white settlement in Zululand.

It will not be, we may be sure, such political and politic promises as those made by Sir Garnet Wolseley which will stand in the way of South African expansion. This must depend, in the long run, upon natural resources and public improvements. Physically, the great deficiency of South Africa is the want of navigable rivers. Railways, however, may be substituted for waterways, and railways are growing. One of the great problems of life for mankind upon this planet will, in a few centuries, be the wood question. In South Africa timber is plentiful in parts, but it needs economising. At present the waste of wood in the world is immense. Ignorant and useless destruction of trees has

half ruined Cyprus; tree felling has probably passed its proper limits in England itself, and the colonists will be wise who, before it is too late, treat their forests as property in which the public has an interest paramount to that of the private owner of the land on which they grow.

Roads are another matter in which South Africa has much to do. In the Transvaal, for instance, the wear and tear of the oxen, which laboriously drag waggons over scarcely perceptible tracks, getting fixed every few miles in the bed of an unbridged stream, with the loss of time and damage to vehicles which ensue, must represent a loss more than sufficient to pay a handsome interest on the capital necessary for constructing really traversable highways. Such matters as this, though not very large, seem too large for the ordinary Dutch Boer to grasp; but as the English element of the population increases, it may be hoped and expected that public works of this kind will be more generally got in hand, and the vast resources of coloured men's labour employed in undertakings other than the milking of the cattle and cleaning the houses of their bucolic masters.

From the foregoing sketch of the present condition of South Africa it will be seen generally that what is going on in that portion of the globe is but another instance of what has been a habit, if not a law, of humanity from the earliest times—migration of a strong race to ground in the possession of a weaker. The history of the movements of man upon the earth is full of records of great migrations: in ancient times they were sudden and impulsive, carried out by large bodies of men; now they are usually gradual and less directly aggressive. The seeds of colonies are generally sown by commerce, though even in modern times the migrations of the Dutch Boers to Natal, to the Orange River, and to the Transvaal, have given instances of impulsive migration in large bodies. The technical morality of the seizure of lands and displacing of previous occupants may not be strictly capable of justification, but there can be little doubt that the consequences are beneficial to the displaced as well as the displacers. It can scarcely be otherwise than for the better that, instead of the slaughtering Zulu, mankind in South Africa should be ruled by the justice-loving and peaceful white colonist; with whom as master not only conquered Hottentots, but also conquering Kaffirs, will lead a happier life, and escape that periodical decimation which is with them the customary means of government.

JOHN CROWDY.

THE HELIOGRAPH.

THE introduction of the heliograph for army and navy signalling adds one more to the many applications of science to war that have been made of late years. The news of the taking of Ali Musjid, in the Khyber Pass, was first conveyed to the Peshawur garrison by sunshine signals made from the fallen fortress itself, while the Commandant of Fort Ekowe, in Zululand, was enabled by the same means to transmit a daily account of the besieged garrison under his orders, to Lord Chelmsford's forces on the Lower Tugela. Colonel Pearson, at Ekowe, strange to say, was unprovided with a properly constructed instrument, and had to do his signalling with an ordinary mirror; and it was not until Lord Chelmsford's final advance, that the army was thoroughly equipped with proper apparatus. In future, however, the heliograph will be considered as important an item of army equipment as the rifle and the spade, and our army signallers will be provided with the mirror apparatus as a matter of course.

The Mance heliograph—for we are indebted for this simple and efficient instrument to Mr. Henry C. Mance, of the Government Persian Gulf Telegraph Department—was brought to the attention of our Government, or rather that of India, in 1869. Mr. Mance did not, of course, pretend to have invented signalling by sunshine, but only to have devised an instrument whereby such signals could be made use of in a simple and intelligible manner. Indeed, it would be hard to say who was the first to make use of the sun for such a purpose. It is said that the fleet of Alexander the Great was guided along the Persian Gulf by means of mirrors, while by the Indian tribes of North America, the mirror is an implement that has been frequently used for the conveyance of news and intelligence. Mr. Galton, in his "Notes on Travel," alludes to several instances of the kind that came under his notice, and it is but two years since the *New York Daily Graphic* gave an account of the *Nez Percés* tribe, by whom the mirror was employed, as smoke has been, as a means of visual telegraphing. The *Nez Percés* Indians were recently captured by the United States forces and confined in a camp near Leavensworth, where they were permitted to live pretty well as they chose, and where, we believe, they are still located. The chief of the *Nez Percés*, according to the *New*

York Daily Graphic, carried with him a looking-glass, "used to direct military manœuvres in battle by means of reflected rays of light. These various significations, however," explained the American organ, "have never yet been found out by the white man." The light signals employed were likely to have been of the most simple character, but that they were thoroughly understood we can have little doubt.

In the Crimean War there is ample proof that sunshine telegraphy was often used by the Russians. There was a signalling station in Sebastopol itself, of which our officers were perfectly aware, and in the *Times* of July 11th, 1855, we find in the correspondence from the seat of war, "A long train of provisions came into Sebastopol to-day, and the mirror telegraph, which works by flashes from a mound over the Belbeck, was exceedingly busy all the forenoon."

In Spain signalling by sunshine has long been resorted to with success, and at the present moment there is permanent heliographic communication established between Africa and Europe across the Mediterranean. Tangiers, Tarifa, Ceuta, and Algeçiras are all in communication with one another by sunshine signals—a matter of the more importance since great difficulties have occurred in maintaining the telegraph cables in the Straits of Gibraltar in working order. When Admiral Sheriff was stationed at Gibraltar in 1835, he was enabled to connect "the Rock" with Tangiers by a system of optical telegraphy. Admiral Sheriff had a friend at Tangiers, on the African shore, and arranged with the latter a special code of signals. In this case the flashes of light were made with the aid of an ordinary toilet looking-glass, but they were so bright and vivid, that the observer at Tangiers had no difficulty in reading Admiral Sheriff's signals, and instantly answering the same across the sea, a distance of some twenty miles.

Before proceeding to an explanation of the Mance heliograph, and the code of signals that our soldiers employ, it will be well to say a word upon the character of reflected sun rays and the distance at which these can be seen. In the first place, we may remark that the intensity of these sunshine signals can scarcely be imagined by any one who has not seen the heliograph at work, and the distance to which reflected rays may be sent, could suitable stations be provided, is practically unlimited. But two conditions are imperative to the proper working of the signals; these are sunshine and the absence of obstacles along the path

of the rays. For this reason it is that tropical and semi-tropical countries are more favourable to the system than are lands like England, which lie in the temperate zone. Given a bright sun, and sunshine signals may be read without difficulty at a considerable distance. The mirror of the heliograph simply turns aside the sun's rays, or changes their direction, and how far they will travel the philosopher will scarcely take upon himself to say. In the case of the moon, we know, for instance, that we have the sun's rays reflected to us from a distance of 232,000 miles, the moon being nothing more than a huge mirror. But a practical idea may be obtained of the vivid character of reflected sun signals by watching the windows of a house at sundown. Any one who has seen a casement thus glittering in the sun will readily understand how distinctly sunshine signals can be read. One sees the burning spot for miles away, the most striking object in the whole landscape. No wonder, then, that the Indian officers, to whom the heliograph was submitted by its inventor, reported that signals "can be easily read in ordinary weather without telescopes up to fifty miles." The distance at which signals may be seen varies naturally with the size of the mirrors employed, but a ten-inch glass, it may be mentioned, was that experimented with in India, and to which this report refers.

The Mance heliograph, it seems, was submitted to the war authorities both in this country and abroad at the same time, and fortunate it is that the Indian Army enjoys a certain amount of independence; for while the latter looked upon the instrument with favour, the Home Government would have nothing to do with it. So that if the Horse Guards had been permitted to have their way, we should never have had the benefit of the instrument in the Afghan War, and, by consequence, in the Zulu campaign neither. Thanks, however, mainly to Colonel Roberts (now General Roberts, who commanded the Kurrum Valley Force) the heliograph was enrolled among our implements of warfare, that officer having recommended that "six or eight instruments be made and stored up with the telegraph train at Roorkee, some men of the Sappers and Miners being kept constantly practised in the use of the instruments." It was these instruments and these practised sappers and miners which stood our army in such good stead when it recently advanced towards Cabul. General Donald Stewart, in command of the Candahar force, maintained tele-

graphic communication by means of the heliograph from the Khojak Pass to Girishk ; General Roberts, from Khost, flashed his messages to the fort at Bannu, a distance of sixty miles ; and Sir Samuel Browne maintained communication with his base at Peshawur from Jellalabad, through the whole length of the Khyber Pass.

The Mance heliograph is a tripod stand which supports a movable mirror. The mirror is in a frame that permits of a swinging horizontal action, like every toilet looking-glass. But not only can the mirror be moved in a horizontal manner ; it can also be twisted sideways in a vertical fashion, the top and bottom turning on a pivot. Under these circumstances it is possible to reflect the sun in any direction, except in that precisely opposite to the luminary, and in this case the difficulty is easily obviated by using a second mirror. The second mirror reflects the rays on to the first, and the first then throws them in the direction required. As in the case of a firearm, it is obviously necessary to aim the flash straight, but this is not so troublesome as may at first sight appear. The horizontal and vertical movements of the mirror permit of its facile adjustment, and in sighting, the observer gets behind the mirror and looks through it. A small portion of quicksilver is removed from the centre of the mirror to enable the observer to do this. The eye, by means of this orifice, is able to look towards the station with which it is desired to communicate, and a sighting rod set up about ten yards in front of the mirror, in the proper alignment, materially aids the observer. A metal stud, answering to the sight of a rifle, is slid upwards or downwards on the rod during the sighting operation, until the centre of mirror (where the observer's eye is), the stud, and the distant station are in a line. The mirror is now reflecting a ray of light to the distant station, and the signaller may rest assured that as long as his reflection strikes the stud in front, the reflection will be seen at the distant station. As the sun gradually works round, it is true, the position of the mirror must be slightly altered, but this offers no difficulty, and, after a proper aim has been taken, the only precaution that the signaller need attend to is to see that every time he reflects, the reflection strikes the stud or sight in front. At the distant station itself the sentinel sees a succession of bright star-like flashes every time the mirror reflects in his direction, or, if the mirror is at rest, then the signal has the appearance of a fixed star.

The way to signal a message is now easy to understand. The

so-called Morse alphabet is used, which is the common language of the electric telegraph. In the Morse alphabet the letters are made up of dots and dashes, or short signals and long signals. Thus, if we make upon paper a short stroke, and another stroke three times as long, we get the letter A, while a long stroke followed by a short stroke signifies N. The short stroke is termed a dot, the long stroke a dash. B is represented by a dash followed by three dots, and C by dash, dot, dash, dot. E, the letter most frequently used, is represented in the Morse code by a single dot, while a single dash stands for T, and so on. To adopt such a code to sunshine signalling is not difficult. To intimate a dot or short signal, it is necessary merely to reflect the light for a short period, say a second, while a dash is shown by a longer signal, a reflection for the period of three seconds. Thus, if the sentinel sees a momentary flash, he regards it as a dot, and one of longer duration he reads as a dash. In this way he spells out any sentence that may be sent him, and according to experience gained in the Afghan and Zulu campaigns, army signallers would appear to be in a position to transmit from ten to twelve words a minute. The sending of the message, which thus consists of long and short flashes, is brought about by depressing a key attached to the heliograph. The depression of the key slightly alters the inclination of the mirror; pressing the key for a long time or a short time produces long or short flashes.

Colonel Pearson, at Fort Ekowe, who employed the mirror for communicating across an enemy's country to the British troops on the Tugela, in the same way as the French maintained correspondence with besieged Paris by means of balloons and homing pigeons, was not, it has been said, provided with the Mance heliograph, neither had he signallers with him familiar with its plan of working. How, then, we may well ask, could he understand and reply to the flashes that came into his camp from friends many miles away. The answer is, that he could not do so for a long time. The little garrison watched the star-like flashes hour after hour before it comprehended that the bright reflections were meant as signals. At last, the sentinels mounted in the tower of the missionary church at Ekowe, seeing the light appear and disappear continually, concluded that it must be Lord Chelmsford's force signalling to them, and the next thing to be done was to try to interpret the signals. Fortunately, it is a rule in the British Army to send to the School of Military Engineering, at Chatham, men from every regiment to be in-

structed in signalling; and one of the first lessons that is set them is to learn the Morse code. Hence, in Colonel Pearson's force there were several acquainted with this useful alphabet, and it very soon occurred to one of them to attempt to decipher the light flashes they saw by the aid of that key. The attempt succeeded, and, to their great joy, they began to read and understand what it was their friends were saying. A mirror was forthwith erected in the Ekowe tower, as a means of reply, and before many days had elapsed, messages were sent with considerable facility. Lord Chelmsford, on his side, communicated the cheering news of a speedy release, and Colonel Pearson telegraphed daily the state of his stores and provisions. When Lord Chelmsford's forces did actually advance, Colonel Pearson, moreover, was able, by means of sunshine signals, to acquaint his chief with the movements of the enemy.

We have said that two conditions are essential to the working of the heliograph, namely, sunshine and the absence of obstacles in the path of the rays; but, in signalling over long distances, it is necessary also to take into consideration the dip of the horizon, and to have the heliograph stations located upon an eminence. Thus it has been calculated that to signal 10 miles requires an altitude of 68 feet, 20 miles 273 feet, 30 miles 616 feet, and 50 miles 1,771 feet. These heights, however, may of course be divided between the two stations. On the other hand, sunshine signals have material advantages that must not be overlooked. The cost of working over a distance of twenty to fifty miles is much less with mirrors than with the electric telegraph, even supposing oxy-hydrogen lamps were provided for night-signalling. Again, an enemy cannot read your signals, because he has no guide to direct him, neither is it possible for him to cut off your communications, so readily done in the case of the electric telegraph by severing the wire.

The heliograph, useful as it has proved itself, cannot, however, supersede either the electric wire or the hand flag as a means of army signalling. But it will be a valuable resource in addition to these. Every regiment in the British service has attached to it men trained as signallers, who employ flags by day and lamps by night; moreover, a field telegraph train, with wire waggons, instruments, and travelling bureaus are attached to every army corps. Provided further with the heliograph, our system of army signalling should be well nigh perfect.

H. Baden Pritchard.

THE EDUCATION OF THE DEAF AND DUMB.

In all ages there have been human beings to whom by birth or accident or disease the faculty of speech has been denied. Our English phrase of *deaf-and-dumb* is not a very accurate one, for the organs of speech are only disused because the power of hearing is absent. Children learn to speak by imitating the sounds of the voices by which they are surrounded. Hence, when deafness isolates them from the world of sound the organs of speech become disused. They are dumb because they are deaf, and not as is sometimes supposed because some mysterious paralysis has nullified the delicate and wonderful mechanism of articulate speech. Could hearing be restored, speech would quickly follow.

The total number of human beings incapable of speech was estimated by Guyot, in 1842, to be 600,000.* The inhabitants of the earth were then supposed to be 850,000,000. The proportion of the deaf-mutes was then estimated as one to 1,500. This was probably the basis of the calculation. In 1871 the proportion in the United Kingdom was one in 1,644; in 1861 it was one in 1,432. It will be sufficient to assume that throughout the world the average is now as in 1842, one deaf-mute to every 1,500 of the population at large. Since that date the careful inquiries of statisticians have increased our definite knowledge as to the number of the dwellers upon the earth. Messrs. Behm and Wagner estimated the population of the world, in 1875, to be 1,396,843,000.† The number may now be set down as 1,400,000,000. The proportion between the two classes shows that at the present moment there are 933,000 deaf-mutes in existence.

In this calculation we have taken as a basis the proportion now existing in civilised communities, but a higher rate may prevail among races less advanced.

There are various allusions to dumbness in the Bible, the earliest being the passage in Exodus iv, 11. Amongst the incidents narrated in the Gospels we have the gift of the power of speech to the dumb by Jesus: "And they bring unto him one that was deaf, and had an impediment in his speech; and they beseech him to put his hand upon him. And he took him aside from the multitude, and put his fingers into his ears, and he spit, and

* Guyot, p. 341.
† Behm u. Wagner. "Die Bevölkerung der Erde." 3 ed. Gotha, 1875.

touched his tongue ; And looking up to heaven, he sighed, and saith unto him, 'Ephphatha,' that is, 'be opened.' And straightway his ears were opened, and the string of his tongue was loosed, and he spoke plain." The scattered notices of the deaf and dumb in classical and mediæval ages are but scanty. The Mishna contains several of those casuistical determinations in which the Talmudists rejoiced, concerning marriages in which deaf-mutes were the contracting parties. When two brothers, it is said, "one of whom is deaf and dumb, and the other sound, are married to two women not related to each other, one of whom is deaf and dumb and the other sound, should the deaf and dumb husband of the deaf and dumb woman die first, what must the sound husband of the sound woman do? He must marry his brother's relict by Yeboom, but may divorce her afterwards. When the sound husband of the sound woman dies first, the deaf and dumb husband of the deaf and dumb woman must marry her without being at liberty to divorce her."*

Herodotus tells of a dumb son of Crœsus the Lydian, who recovered speech on beholding his father's life in danger at the storming of Sardis. The boy when he saw the design of the Persian, exclaimed in terror and astonishment "Oh! man, do not kill Crœsus." This was the first time he had ever articulated, but he retained the faculty of speech during the remainder of his life.†

Bede has given an account of a cure of a dumb man performed

* Sola and Raphall, "Eighteen Treatises from the Mishna," 1845, p. 233.

† Sir Walter Scott has introduced a similar incident at the close of the "Lord of the Isles." There is a curious instance of recovery from congenital deafness recorded in "Philosophical Transactions" (No. 312). About the age of seventeen a young man, a congenital deaf-mute, was twice attacked by fever. "Some weeks after recovery, he perceived a motion of some kind in his brain, which was very uneasy to him and afterwards he began to hear, and, in process of time, to understand speech. This naturally disposed him to imitate what he heard, and to attempt to speak. The servants were much annoyed to hear him. He was not distinctly understood, however, for some weeks; but is now understood tolerably well. But what is singular, is, that he retains the Highland accent, just as Highlanders do, who are advanced to his age before they begin to learn the English tongue. He cannot speak any Erse or Irish, for it was in the Lowlands he first heard and spoke." The curious circumstance of his possession of the Highland accent is confirmed by the testimony of similar phenomena in Spain. "One fact," says Ticknor, "I witnessed and knew therefore personally, which is extremely curious. Not one of the pupils, of course, can ever have heard a human sound, and all their knowledge and practice in speaking must come from their imitation of the visible mechanical movement of the lips, and other organs of enunciation, by their teachers, who are all Castilians, yet each speaks clearly and decidedly and with the accent of the province from which he comes, so that I could instantly distinguish the Catalonians and Biscayans and Castilians, whilst others more practised in Spanish felt the Malagan and Andalusian tones." ("Life and Journals of George Ticknor." London, 1876. Vol. i. p. 196.) A similar case has been mentioned to me by Mr. J. J. Alley, of Manchester. E. R. became deaf and dumb at a very early age, and did not talk until he was about seventeen, when he was taught articulation by Mr. Alley. He speaks with the accent of his native county of Stafford.

by St. John of Beverley. This narrative, though curious, is not of sufficient importance to demand reproduction. That which Bede narrates as a miracle and of instantaneous occurrence may have as its substratum of truth that the saint taught the dumb youth to articulate by a process similar to that now employed in the German system. There was an idea that dumbness resulted not from deafness, but the effect of "a common organic lesion of the lingual and auditory nerves." Hence it was thought that the education of deaf-mutes was hopeless. Rudolph Agricola, the pupil of à Kempis and Valla, and who predicted the future greatness of Erasmus, mentions a deaf-mute who was taught to understand writing, and to write down his own thoughts.

It was the penetrating mind of Cardan that, separating the conception of thought from the vehicle in which it is conveyed, conceived the theory upon which the education of the deaf and dumb is based. The possibility of indicating ideas without the intervention of sound, is the pregnant thought from which subsequent systems have been developed.

The speculative principles of Cardan were put in practice in Spain by Pedro Ponce, a monk of the order of St. Benedict, who was born at Valladolid in 1520. He is said by some to have derived his inspiration from the passage in Bede, already quoted, and by others from the ancient pantomimic representations. Ponce is said to have undertaken the education of Gaspard Burgos, who could only be admitted to the convent as a servant, because he was deaf and dumb. Few particulars have been preserved of the method he employed, but it is said that he first wrote the alphabet and then showed the motions of lips, tongue, &c., necessary to produce the sounds of which the letters were the symbol. He is said to have taught four deaf-mutes of high rank.

A century later than the birth of Ponce, we have Juan Pablo Bonet, whose "Reduccion de las Letras" appeared in 1620, and is the first book containing a "manual" alphabet. It is the precursor of the one-handed alphabet still generally used on the Continent and in America. One of his pupils was seen by Sir Kenelm Digby when engaged in the business of the proposed Spanish marriage, who says of this teacher, that "after strange patience, constancie, and paines he brought the young Lord to speak as distinctly as any man whatsoever; and to understand perfectly what others said, that he would not loose a word in a whole day's conversation." There was some uncertainty as to the

management of the tone of his voice, but his imitative powers were so well developed that he could echo the pronunciation of Welsh and other unfamiliar languages.

The next name of note is that of John Bulwer, an Englishman, whose singular abilities and arguments have not met with that acknowledgment which is their due. His book appeared in 1648, and is entitled "Philocophus, or the Deafe and Dumbe Man's Friend. Exhibiting the philosophicall verity of that subtle art, which may enable one with an observant eie, to heare what any man speaks by the moving of his lips.'" Bulwer was one of the most singular geniuses of his age, and having published a book upon "The Naturall Language of the Hand," was asked if he could not accommodate it to the use of deaf-mutes. It is remarkable, perhaps, that this did not suggest to him the manual alphabet, but the only hints of it are in the following passage:—

"But most miserable are they who are *blinde*, *deafe*, and *dumbe*. An example of which wretched condition we have in *Platerus*, of a certaine Abbot, who being made *blinde*, *mute*, and *deafe*, ... could no other way understand and perceive the mindes of others, than by their drawing letters upon his naked arm with their finger, or piece of wood; expressing some intimation unto him, out of which singly by themselves apart perceived, he collected a *worde*, and of many *wordes* a *sentence;* which how miserable a case it was, and how horrid the punishment of his committed sinne, any one may easily understand. A pregnant example of the officious nature of the Touch, in supplying the defect or temporall incapacity of the other senses, we have in one Master *Babington*, of *Burntwood*, in the county of *Essex*, an ingenious Gentleman, who through some sicknesse becoming *deaf*, doth notwithstanding feele words, and, as if he had an eye in his finger, sees signes in the darke; whose Wife discourseth very perfectly with him by a strange way of Arthrologie or Alphabet, contrived on the joynts of his Fingers; who, taking him by the hand in the night, can so discourse with him very exactly; for he feeling the joynts which she toucheth for letters, by them collected into words, very readily conceives what shee would suggest unto him. By which examples you may see how ready, upon any invitation of art, the *Tact* is to supply the defect, and to officiate for any or all of the other senses, as being the most faithfull sense to man, being both the *Founder* and *Vicar-generall* to all the rest." (Page 106.)

Bulwer names several deaf-mutes who were able, by lip-read-

ing, to understand their fellows, and to take part in affairs. Bulwer projected an academy for the education of the deaf and dumb, but found that even rational men with whom he conversed regarded his proposal as "paradoxicall, prodigious, and hyperbolical." In addition to his "Philocophus," he composed a work entitled "The Deaf and Dumb Academy," which does not appear to have been printed.*

More important than the works of John Bulwer, were the publications of George Dalgarno, whose memory was revived by Dugald Stewart after it had long been forgotten. He saw clearly the possibility of educating deaf-mute children. "And, as I think," he says, "the eye to be as docile as the ear, so neither see I any reason but the hand might be made as tractable an organ as the tongue, and as soon brought to form, if not fair, at least legible characters, as the tongue to imitate and echo back articulate sounds." He gave a sketch of a dictionary and grammar for deaf persons.†

To the same century belongs the phonetic inquiries of Dr. William Holder (1669) and the remarkably successful experiments of Dr. John Wallis, who taught articulation. One of his pupils was exhibited to the King in 1662. Those who are curious in such matter may read an account in the English edition of Bayle, of a somewhat fierce dispute as to priority between these distinguished men. There were several publications about this time. George Sibscota's "Deaf and Dumb Man's Discourse" (1690) is a mere translation of a dissertation by Densing, but George Dalgarno's "Didascoluphus" is really an epoch-making book. He declares himself to be, so far as he knew, the first who had treated the subject, and describes a bi-manual-alphabet which is probably the original of that now used in this country.

A learned contemporary of Wallis was Dr. Johan Conrad Amman, whose "Dissertation on Speech," first published in 1700,

* There is a notice of Bulwer in the "Retrospective Review," N.S., 11,205, but no adequate account has yet appeared of this singular man, whose fertility as an author is only equalled by the eccentric variety of the subjects with which he dealt. His works are all rare, many still remain in MS. Those referred to above were kindly lent me by Mr. G. W. Napier, of Alderley Edge, in whose very curious library there is a special place reserved for John Bulwer. There is an interesting passage in the "Prodromo" of Lana, published at Brescia in 1670, on the method of teaching deaf-mutes to articulate, "facendo insieme, che intenda con gl' occhi l' altrui parole." His attention appears to have been drawn to the object by the testimony of Kenelm Digby. No one, he says, so far as he knew, had written upon the method by which this could be accomplished. His remarks are sensible and to the point. Of course the plan he recommends is that of developing the imitative powers of the pupils. In 1667 F. van Helmont printed a tract in which Hebrew is set forth as a visible speech; its letters, according to him, being physiological diagrams of the vocal organs.

† "Edinburgh Review," lxi, 407.

was translated by the late Dr. Charles Baker. Amman describes in some detail his method for teaching articulation. His pupils were made not only to watch the action of his lips but to feel the conformation of his throat, whilst he was uttering the words he wished them to imitate. In a fortnight he taught a tailor's son to read and commit to memory the Lord's Prayer. Amman has also given some particulars as to the means he used for communicating information to deaf-mutes, for it is obvious that without this education deaf-mutes might utter human sounds with no more coherence or intellectual propriety than a parrot. There is a curious bit of evidence as to the use of dactylology at the commencement of the last century. In the trial of Richard Noble for the murder of John Sayer, in 1713, it was mentioned that Sayer's jealousy was aroused by conversations incomprehensible to him, as his wife talked upon her fingers. Bruhier, writing about 1746, mentions several cases of lip-reading. One is that of a Silesian workman who became deaf and dumb through smallpox, and was able to understand those whom he knew by watching their movements in speaking. His wife was thus able to interpret to him what was said by strangers. Bruhier tells us that he knew a mute who had a good knowledge of literature and of mathematics, and who was instructing several of his comrades in misfortune.

In France the labours of the Abbé de l'Epée attracted great and deserved notice.* He was borne at Versailles in 1712, and became a priest of the Jansenist school. His attention was called to the condition of the deaf and dumb by a casual visit to a house in which two poor deaf-mute sisters were at work. They had received some instruction from Père Simon Vanin, but his death had left them without instructor. With benevolent enthusiasm De l'Epée undertook to continue their education. He had no practical acquaintance with the training of the deaf and dumb, nor does it appear that "prints" used by his predecessor were of much avail. The character and uses of these prints are not stated. In a conversation at the age of sixteen the separateness of thought and speech had been strongly impressed upon his mind. He had, however found his life work, and devoted to it all that he had of time, talent, and money. His gentle nature even delighted in ascetic self-denial for the sake of his pupils.

* De l'Epée had a predecessor in Jacob Rodriguez Pereire, who was very successful as a teacher between 1740 and 1750, but he shrouded his method in mystery. His pupil Saboureux de Fontenay made as great a sensation as Massieu. Of Vanin some particulars lately brought to light are given in the "Annals," xxiv, 80.

De l'Epée's judgment was not always sound. His gentle heart was made the victim of one of his pupils, a clever impostor, twenty years of age, who pretended to have been wrongfully defrauded of the title and estate of the ancient and wealthy family of the Comtes de Solar. The "claimant" found his way to the gallows. The affair was productive of great trouble to De l'Epée.*

The success which attended his labours as a teacher gave a great impetus to the education of deaf-mutes, and that which he had begun as a private work of charity was continued as a national institution. De l'Epée died in 1789, and was succeeded by Sicard, who possessed in a rare degree the art of showing off his pupils; one of his scholars, Massieu, became celebrated for the neatness and piquancy of some of his replies to questions proposed at the public lectures of his preceptor. He described God as the Sun of Eternity, and having defined remembrance, he added, "*C'est à la memoire ce que la rivière est à la mer.*" It is doubtful whether the brilliant displays of Massieu did not encourage hopes that were little likely to be realised as to the attainments of the rank and file of the deaf and dumb.

The contemporary and rival of De l'Epée was Samuel Heinicke, a Saxon, who in 1778 became director of a deaf-mute institution established at Leipzig by the Elector Augustus Frederick. Whilst De l'Epée used the finger and sign language, Heinicke, like the older authorities, based his plan upon written and spoken language. He was a vigorous and sometimes acrimonious critic.

The first scholastic institution in England was that of Thomas Braidwood, who opened an academy at Edinburgh in 1760. Dumbiedykes was visited in 1773 by Dr. Johnson, who was acquainted with what had already been done by Bonet, Wallis, and others, and therefore prepared to take an intelligent interest in what he saw. "Braidwood's pupils," he says, "not only speak, write, and understand what is written, but if he that speaks looks towards them and modifies his organs by distinct and full utterance, they know so well what is spoken that it is an expression scarcely figurative to say they hear with the eye." Johnson tried their powers in arithmetic, and gave them one of his *sesquipedalia verbæ*, the memory of which long remained in the school. In 1783 Braidwood removed to Hackney, and in 1792 the London Asylum was established under the guidance of

* Bouilly founded on this incident his drama "L'Abbe de l'Epée," of which an English version by Holcroft used formerly to have occasional possession of the stage. Bouilly, of course, adopts the theory that Theodore, the claimant, was really the Comte de Solar, and Sicard expressed the same opinion when writing in 1820.

Dr. Joseph Watson, a nephew and former assistant of Braidwood. Three generations of Watsons have guided the fortunes of this institution, the present principal being the Rev. J. H. Watson, M.A., the grandson of the founder. From this germ of charity have sprung various other institutions. The census of 1871 affords the following information concerning them :—

Name and Locality of Institution.	When instituted or opened.	No. of Pupils in Institution on 8th April, 1879.		
		Total.	Males.	Females.
Asylum for Indigent Deaf and Dumb Children, Old Kent Road, Surrey	1792	259	163	96
Deaf and Dumb Asylum, Hackney	..	36	..	36
Institution for the Instruction of Deaf and Dumb Children of the Counties of Sussex, Hants, and Kent, Eastern Road, Brighton ..	1840	97	49	48
Margate Branch of the Asylum for Indigent Deaf and Dumb Children, situate in the Old Kent Road, Surrey	1862	58	30	28
West of England Institution for the Instruction of Deaf and Dumb Children of the Counties of Devon, Cornwall, Somerset, and Dorset, St. Leonard, Exeter	1827	65	39	26
Institution for the Blind and Deaf and Dumb, Walcot Parade, Bath	1843	20*	8	12
General Institution for the Instruction of Deaf and Dumb Children, Edgbaston, Birmingham	1812	108	54	54
Institution for Deaf and Dumb, Bristol ..	1841	33	20	13
School for the Deaf and Dumb, Liverpool ..	1825	70†	40	30
		30‡	19	11
Manchester School for the Deaf and Dumb, Old Trafford, Manchester	1823	138	72	66
Yorkshire Institution for the Education of Deaf and Dumb Children, Doncaster ..	1829	105	57	48
Northern Counties Institution for the Education of the Deaf and Dumb, Newcastle-upon-Tyne	1838	77	44	33
The Cambrian Institution for the Deaf and Dumb, Swansea	1847	26	15	11
Total	..	1,122	610	512

The influence of De l'Epée was extended to America by Laurent Clerc, a pupil of Sicard's, who, in 1816, left the Old for the New World in company with Gallaudet, founder and principal of the first American Asylum. There are now two score institutions in the United States, where the education of the deaf-mute has been carried to its highest point. There were, in 1870, 3,732 pupils receiving instruction in 34 local institutions, supported by State or private beneficence. These children repre-

* Deaf and dumb pupils only. † Boarders. ‡Day scholars.

sent a total population of deaf-mutes, of all ages, in the United States of about 20,000. One of the most interesting of these schools is the Columbia Institution for the Deaf and Dumb, which is situated at Washington, and may be taken as the expression of the national interest on the subject. In connection with this institution a higher course of education was organised in 1864, under the title of the National Deaf-Mute College. Its object is to give to competent deaf-mutes and others, who by reason of deafness cannot be educated elsewhere, the opportunity to secure a thorough education in the studies usually pursued in American Colleges. The college thus bears to other institutions for the deaf and dumb the same relation that colleges for hearing and speaking persons bear to primary schools and academies. The course of study is as follows :—Studies of Preparatory Class : Mathematics, arithmetic and algebra, physical geography, history, natural philosophy, English, Latin. Studies of the Freshmen Class : Mathematics, algebra, geometry, English, Latin, Greek (optional). Studies of the Sophomore Class : Mathematics, conic sections, plane and spherical trigonometry and surveying, botany, chemistry, Latin, Greek (optional), history, English. Studies of the Junior Class : Mathematics, natural philosophy, astronomy, chemistry, laboratory practice, with lectures, mineralogy, geology, French, Greek (optional), history, English. Studies of the Senior Class : Geology, physiology, German, mental philosophy and logic, English, moral philosophy, and evidences of Christianity, political philosophy, æsthetics. Instruction in book-keeping and in drawing and painting is given to those who desire it. Instruction in articulation is given to those who desire it, and have aptness for it. The American Congress makes provision for the free admission of residents of the district of Columbia who have not the means of supporting themselves, and for those whose fathers are in the military or naval service of the United States. To students from the States and territories who have not the means of defraying all the expenses of the college course, the board of directors renders such assistance as circumstances seem to require, and as far as the means at its disposal for this object will allow. The corporation is authorised by an Act of Congress to confer "such degrees in the arts and sciences as are usually granted in colleges," and the degree of Bachelor of Arts is conferred on all students who have sustained examinations on the full college course of four years, and who have paid all their dues to the

college. The results of this interesting experiment have been of the most encouraging description. In 1871 President Gallaudet thus spoke of the 71 persons who had at the time been received as students :– "They have come to us from every quarter of the land, recommended as youths of special promise, possessing mental qualities which fitted them for labour of a higher order than that which requires only the skilful hand. Nineteen of them, prevented from various causes from pursuing our course of study to its completion, have left us, after having enjoyed the advantage of the college for periods ranging from six months to three years, and are, so far as we have heard from them, sustaining themselves well in the business of life. Three young men of promise have been taken from our midst by death. Nine have graduated with such academic honours as their advancement justified, leaving 40 still connected with the college. It may, perhaps, be a sufficient answer to such as ask doubtingly, 'Of what use can the graduates of a deaf-mute college be in a community?' to state that our nine alumni were called, some of them before, and others immediately after, their graduation, to positions of responsibility which they could never have hoped to fill but for their college training. Six have become teachers in various institutions for the deaf and dumb in this country and in Canada. One of these has been made the instructor of a high class, an honour never before accorded to a deaf-mute. Another graduate occupies the position of tutor in our own college, and another is an assistant examiner, Patent Office. The amount of compensation which these young men receive in the aggregate is 9,800 dollars, or an average of nearly 1,100 dollars each per annum. The exhibition of these facts, though constituting a practical answer to the question just raised, does not give a full response to it. We have good reason to expect that our graduates will be able to render valuable service to society, not only as teachers and clerks, but as chemists, civil engineers, draughtsmen, architects, astronomical observers, translators of foreign publications, editors, authors, librarians, lawyers, and in many other capacities which do not now suggest themselves, but which the perseverance and ingenuity of the deaf-mutes will doubtless discover. The statistics of deaf-mutism in our country lead us to expect that the number of students in our college will rise to 150 within the next decade. We may also look for an increase of our primary department to 100 within the same period, and these numbers are not likely therefore to decrease." Mr. John

J. Flournoy, who died in January, 1879, at his estate in Georgia, advocated the formation of a deaf-mute commonwealth, which he desired to represent in Congress. He was honest but eccentric, and amongst other quaint ideas held that *trigamy* was the true remedy for the social evil.*

The statistics of deaf-mutism show that it is on the decline in our country. This may be due to increased medical knowledge and greater attention to sanitary laws. The figures from the two last censuses show this gratifying diminution in a very striking manner. In 1861 the total number was 20,311, or 1 in 1,432; by 1871 the number had fallen to 19,237, and the proportion to 1 in 1,644. The numbers at the two dates were :—

	1861.	1871.
England and Wales	11,518 or 1 in 1,640	11,518 or 1 in 1,972
Scotland	2,335 ,, 1,311	2,088 ,, 1,609
Ireland	5,653 ,, 1,026	5,554 ,, 975
Channel Islands and Isle of Man ..	87 ,, 1,649	77 ,, 1,878
	20,311 ,, 1,432	19,237 ,, 1,644

The proportions in different parts of the country vary very greatly, from Worcestershire, where there is one deaf-mute to every 1,236 persons, to Huntingdonshire, where there is only one to every 3,414 of the population. The variations are sufficiently great to suggest the action of local conditions, without very clearly indicating their nature. The census gives some particulars as to the ages, which are not without interest :—

	Males.	Females.		Males.	Females.
Under 5	233	211	50 to 55	250	205
5 to 10	894	701	55 ,, 60	203	176
10 ,, 15	872	742	65 ,, 70	124	103
15 ,, 20	732	634	70 ,, 75	65	63
20 ,, 25	667	558	75 ,, 80	29	35
25 ,, 30	546	394	80 ,, 85	14	16
30 ,, 35	440	375	85 ,, 90	8	10
35 ,, 40	378	302	90	1	1
40 ,, 45	345	318			
45 ,, 50	286	237		6,262	5,256

Though these figures indicate a somewhat shorter expectation of life than obtains among the general population, there are not wanting instances of longevity amongst deaf-mutes. There was one alive in 1846 at the age of 82, who remembered De l'Epée, at whose institution he had been educated.

* "Annals," xxiv, 127.

The attempt to learn the proportion of the persons born deaf and dumb was not very successful, but of 1,054 persons resident in public institutions, it appeared that 63 per cent. were congenital mutes. It is often said that the marriage of near kin is a frequent cause of deaf-mutism. This view has been propounded in a very emphatic manner by M. Boudin, whose researches were summarised by a writer in "Chambers' Journal." "Taking the whole number of marriages in France, the consanguineous represent 2 per cent., while the proportion of deaf and dumb children born of those consanguineous marriages is to the whole number of deaf and dumb births at Lyons, at least 25 per cent.; at Paris, 28 per cent.; at Bordeaux, 30 per cent. The nearer the consanguinity of parents, the more does this proportion increase; and if we represent by 1 the danger of begetting a deaf and dumb child from an ordinary marriage, it would have to be represented by 18 in marriages between cousins-german; by 37 in marriages between uncles and nieces; and by 70 in marriages between nephews and aunts. It will surprise some readers to hear that the subject is one in which the religious element is involved: Protestantism is more favourable to consanguineous marriages than Roman Catholicism is; and it appears by a return from Berlin, that the proportion of deaf and dumb children in 10,000 Catholics in that city was 3·1; in 10,000 of other Christian sects, mostly Protestant, it was 6; and among Jews, 27 in 10,000. A similar result comes out in other circumstances. By a census taken in the territory of Iowa in 1840, there were found 2·3 deaf and dumb in 10,000 whites; 212 deaf and dumb in 10,000 blacks (slaves), or 91 times more than among the whites. In this case, the habits of the blacks were favourable to the increased result. It is found that where inter-marriage is in some sort a necessity, from geographical position, there is an immense increase in the proportion of deaf and dumb births. For the whole of France, the proportion is 6 in 10,000; in Corsica, it rises to 14 in 10,000; in the High Alps, to 23; in the canton of Berne, to 28. In Iceland, it is 11." This is the alarmist view of the subject concisely stated. Boudin, however, greatly underrates the number of consanguineous marriages in France, where it is estimated by Darwin at from 5 to 8 per cent. As for his American statistics, slavery never existed in Iowa, and we have Mr. Fay's testimony that "the returns of the census of 1840 were grossly perverted in the interests of slavery, so as falsely to indicate that a far greater proportion of the free blacks

of the North suffered from various physical infirmities than the slaves of the south. Many white deaf-mutes in the Northern States were recorded in the census as coloured, and afflicted not only with deafness, but divers other calamities. The truth is, that if the several censuses of the United States prove anything with regard to the influence of slavery upon deaf-mutism, they prove just the opposite of what MM. Devay and Boudin would have them, for they show a much less proportion of deaf-mutes amongst the black than among the white race." In the Manchester Schools, out of 130 pupils only one was the offspring of first cousins. At Birmingham, of the congenital deaf-mutes not one had resulted from the marriage of near kin, and only one of those who had become deaf from disease. Mr. Darwin had accurate information with respect to 366 families, and out of these 8 were offspring of first cousins; that is to say, nearly 2·2 per cent. were the offspring of first cousins. Thus, as far as these meagre results go, no evil in the direction of deaf-mutism would appear to arise from first cousin marriages. Dr. Huth remarks upon the utter worthlessness of the statistical evidence offered as proof of the evil results of consanguineous marriages.

The valleys of Switzerland, where inter-marriages are common, are notorious for goitre, cretinism, and deaf-mutism; but other communities like those of the Pitcairn Islands, where marriages of near kin are unusually prevalent, show a more than common exemption from deaf-mutism. The Hebrew race was founded upon the marriage of a half-sister, and its continual inter-marriages have not affected either its intellectual or physical vigour. The three founders of the Jewish nation, Moses, Aaron, and Miriam were the offspring of a nephew and his aunt, and the pedigree if traced back to Abraham will show a curious succession of alliances of persons near akin.

So far as our present knowledge extends, there is no *proof* that the marriage of near kin has any decided influence as a cause of deaf-mutism. It is a case in which further investigation is needed. The existing data when rigidly examined is conflicting and unsatisfactory. It is possible that where evil results are observed, they may be due not to the mere fact of relationship but to the inheritance of certain pathological tendencies.

From the last census we learn that of 6,262 deaf-mute males in England and Wales, 90 were engaged in the learned professions, or in literature, art, and science. This small number includes not only the followers of those professions, but their

immediate subordinates. On examining this table more closely, we shall find that whilst three were officers of the national government, one was employed by the local government. The Indian and Colonial Departments do not appear to have any of this class in their service. Four are in the army, but in what capacity is not stated. The naval service presents a complete blank. There are four clergymen or persons connected with the services of religion. There are two lawyers or law-stationers, and eleven described as authors or literary persons and students.* There are sixty-one artists and even one musician. Seven teachers and two scientific persons complete the list of those devoted to the professions.† Fifty-seven males, "persons of rank or property," were not returned under any office or occupation. This statement will show how comparatively few of the deaf-mute make their way into professional life; whilst the diversity of the occupations shows that the deprivation of speech is not so complete a barrier to success as might at first have been thought. That compensation, which is at once the most certain and mysterious of the laws of nature, may, indeed, lead sometimes to an increased perceptive power favourable to artistic development. The soul to whom the harmonious beauty of sound has been denied, may, from its solitude, look out with all the more patient love and devotion upon beauty of form. Thus alone can it satisfy the hunger and thirst after the beautiful, which is the heritage of the artist. The appreciation of the sensuous, which is the physical basis of the love of the beautiful, has, in the case of the deaf-mute, to find expression by the one channel. This concentration may lead to increased force. But, without careful culture, these possibilities have small chance of being translated into fact. In England the Legislature in its action respecting the education of the people, has not thought it necessary to make any special provision for those who labour under the disadvantages of deaf-mutism, and has, on several occasions, refused to take any action on their behalf. Private liberality has done much to cope with the difficulty, so far as elementary instruction is concerned, but has done little towards the higher education.

* A remarkable instance of the attainment of high cultivation is afforded by the life of the late Mr. John William Lowe, a congenital mute, who died in 1876 at the age of 72, and was an accomplished conveyancer, and was familiar in an unusual degree with classical and modern languages. He both articulated and employed the finger-and-sign language. ("Annals," xxii, 40.) Other instances could be cited.

† The Italian journals record even a performance in which deaf-mutes took oral part. The play selected was very appropriately Bouilly's drama "L'Abbe de l'Epée." Their voices although monotonous, were, it is said, "clear, effective, and pleasing." ("Annals," xxiv, 192.)

There are four methods by which the deaf-mute can communicate with his fellow beings: the gesture-language, the finger alphabet, and writing, and articulation. Gestures form the speech of nature. They are the universal language of which so many philosophers have dreamed. There is confusion in some minds between the sign language and dactylology, but they are quite distinct, the one being as old as human nature, the other probably the invention of Ponce.

The gesture-language cannot be described better than as "a system of representing objects and ideas by a rude outline gesture imitating their most striking features." Hence, there is a certain likeness between the signs used by all who employ this method, although ludicrous mistakes must, one would imagine, be quite possible events. Thus, Tylor tells us, that to put the forefinger against the closed lips is "silence," but the finger put in the mouth means a "child." These are two very natural and distinct signs, yet they led the Greek to make Harpocrates the God of Silence, out of the Egyptian Horus, the God of the Dawn, who was not unfittingly represented by the image of a child. The universality of the gesture-language may be illustrated by "the remarkable spectacle of a Belgian deaf-mute, who did not understand English, entertaining for upwards of an hour a number of English deaf and dumb, who were unacquainted with the native language of the lecturer."

Dactylology combined with a certain number of natural or arbitrary signs, is the method which has so far been generally followed in England, but strenuous efforts are now being made to bring into popular favour the oral teaching, known as the German system. The advantage of the manual alphabet is the comparative ease with which it can be taught; its disadvantage is that it accentuates the difference between the deaf-mute and the rest of the world, and makes him a being apart, a foreigner in his native land. In spite of this disadvantage, thousands educated under this system have taken their share in the battle of life, and been able to give a good account in the mart and in the workshop.

Dactylology can only be taught and learned by great perseverance and energy, but oral teaching makes still heavier demands. The deaf-mute has to be taught not only the habit of accurate observation, until he is able to detect by the motions of the lips the sounds he can never hear, but also the management of his vocal organs for the production of sounds that must ever

remain inaudible to him. The system of "visible speech," devised by Mr. A. G. Bell, has been used for this purpose in America. It may be described as a philosophical alphabet, the characters in which are physiological diagrams. The marvellous results of oral teaching in individual cases are indisputable, but some teachers, Dr. Buxton for example, who speaks with the authority due to enthusiasm and experience, doubt whether it is adapted for general use. Further experience alone can decide this problem. Moritz Hill, a distinguished professor of this system, claims that out of one hundred pupils, eighty-five are capable when leaving the school of conversing on commonplace subjects with their teachers, family, and intimate friends. Sixty-two can do so easily. Out of one hundred pupils, eleven can converse readily with strangers on ordinary subjects. Many others learn to do this after quitting school.* It is a strong point in favour of articulation, that by the exercise of the vocal organs the health of the lungs is greatly promoted.

Some evidences have already been cited of the intellectual capacity of the deaf and dumb. Their powers have been the subject of inconsiderate exaggeration and depreciation. They vary in what may be called natural powers, in the same manner as their hearing brethren, and have the additional disadvantage of being in the position of foreigners in their own land. Their thoughts to reach accurately the outside world, must not only be expressed but translated. Many curious examples have been recorded of the peculiar phraseology in which they sometimes clothe their thoughts, owing to the difference between the natural logic of the order of their sentences and the more highly developed and involved structure of spoken language. To weed these "deaf-mutisms" is one of the most difficult of the teacher's tasks.

There are recorded in the English census one hundred and eleven persons who were blind, deaf, and dumb. Several remarkable cases have been recorded of beings thus deprived of the ordinary instruments of moral and intellectual instruction, yet making considerable progress. The most important of these, from an educational and psychological point of view, is that of Laura Bridgman, who was born in 1829, and is still living an inmate of the Perkins' Institute for the Blind, at Boston, Massachusetts. When two years old she was attacked by an illness which destroyed her powers both of hearing and of sight,

* "Annals," xix, 141.

and gravely injured the senses of smell and taste. She was taught the finger alphabet, not in the earlier stages without great difficulty, and the correspondence between word and object having once been made clear to her mind, her future progress became rapid for one so deprived of ordinary "secretaries of the mind." The record of her education has recently been written by Mrs. Lamson, her former teacher, and is full of suggestive matter in relation to practical education and to the most intricate questions of mental and moral philosophy. Her passion for knowledge enabled her to acquire a fair education, to read the raised books prepared for the blind, to write, and to cipher. She has some acquaintance with the piano and is a good needlewoman. By reading and conversation she has acquired a good stock of information on many subjects, some of them sufficiently remote, and has been rescued from the darkness of a mere animal existence to a life of intellectual interest, of cheerful contentment, and of religious feeling and emotion. Charles Dickens, who was greatly interested in her case, has given a description of her, which, whilst eloquent, does not exaggerate. "Her face was radiant with intelligence and pleasure. Her hair, braided by her own hands, was bound about a head whose intellectual capacity and development were beautifully expressed in its graceful outline, and its broad, open brow; her dress, arranged by herself, was a pattern of neatness and simplicity; the work she had knitted lay beside her; her writing book was on the desk she leaned upon. From the mournful ruin of such bereavement there had risen up this gentle, tender, guileless, grateful-hearted being."

Laura Bridgman is fond of letter-writing, and has composed two "poems," which are extremely curious examples of the lyrical instinct. One of these embodies the aspirations which give light and hope to the darkened prison-house of her soul:—

"Heaven is holy home.
Holy home is from everlasting to everlasting.
Holy home is summerly.
I pass this dark home toward a light home.
Earthly home shall perish.
But holy home shall endure for ever.
Earthly home is wintry.
Hard it is for us to appreciate the radiance of holy home, because of the blindness of our minds.
How glorious holy home is, and still more than a beam of sun!
By the finger of God my ears and eyes shall be opened.
The string of my tongue shall be loosed.
With sweeter joys in heaven I shall hear and speak and see.
With glorious rapture in holy home for me to hear the angels sing and perform upon instruments.

Also that I can behold the beauty of heavenly home.
Jesus Christ has gone to prepare a place for those who love and believe Him.
My zealous hope is that sinners might turn themselves from the power of darkness unto light divine.
When I die, God will make me happy.
In Heaven music is sweeter than honey, and finer than a diamond."

It will be seen from this rapid retrospect, that the art of educating the deaf and dumb has gone through more than usual vicissitudes. Methods have been invented, forgotten and re-invented in a manner which renders its earlier annals confused and perplexing. The philanthropy of the eighteenth and nineteenth century has done much. Whilst sanitary and medical science has reduced the frequency of deaf-mutism, educational agencies have been at work, giving its victim a fuller preparation and equipment for the battle of life. Education cannot restore to the deaf and dumb the lost glory of the many voices of nature, but it can fill that dumb void with intellectual sympathies and moral aspirations until,

" The silence itself is music
Like the music of the stars."

WILLIAM E. A. AXON.

NOTE.

The works chiefly referred to in the foregoing article are as follows:—"Liste Litteraire Philocophe," par C. Guyot et R. T. Guyot. Groningue, 1842. "Marriages between First Cousins in England, and their Effect," by George H. Darwin ("Journal of Statistical Society," June and September, 1875). "Studj sui Matrimonj consanguinei de Paolo Mantegazza." Milano, 1868. "Consanguineous Marriages as a Cause of Deaf-Mutism," by Edward A. Fay, 1876. "Caprices d'Imagination," [par Jean Jacques Bruhier.] Amst., 1741. "The Marriage of near Kin," by Alfred Henry Huth. London, 1875. "Anecdotes and Annals of the Deaf and Dumb," by Charles Edward Herbert Orpen, M.D. Dublin, 1836. "La Surdi-Mutité, Traité Philosophique et Medical," par le Dr. A. Blanchet. Paris, 1850. "Annals of the Deaf and Dumb," published quarterly at Washington, U. S. "Life and Education of Laura Bridgman," by her teacher, Mary Swift Lamson. London, 1878.

THE RATING OF CHRONOMETERS.

THE rating of the marine chronometer for the purposes of navigation is but little understood by the general public. Nor is this to be wondered at, when we consider how deficient most of us are with respect to the principles and management of our own particular timekeepers; indeed, had we only an outline of the simplest elementary knowledge in that direction, it would be utterly impossible for the thousands and thousands of watches—the merest rubbish of their kind—to find a market in this country. With that, however, we have here nothing further to do. The reader will be kind enough to bear in mind that, throughout this paper, the term "chronometer" will have reference to the marine chronometer only; this statement being necessary, because there are watches called "pocket chronometers" extensively used upon land as well as at sea, and, unless noticed in time, a confusion might arise.

The rating of the chronometer is that operation, or that series of operations, performed by the maker for the purpose of ascertaining its timekeeping properties in relation to the standard mean time astronomical clock of an established meridian. Ours is Greenwich; and the chronometer maker has to so manipulate his instrument after he has set it going, that it shall beat as nearly to that standard as is practicable. To attain that object, he has to be highly skilled in the quality of the materials operated on, to deal with variations and extremes of temperature, and other details; in fact, to educate his now living handiwork, so to speak, in such a way, that it shall, in its sailings over the globe, be the ever-sleepless and ever-trusty friend of the mariner wherever and whenever he may desire to consult it.

At one time, the name "chronometer" was used to signify almost any kind of time-keeping instrument, being derived from the Greek words χρονος, time, and μετρον, measure; in other words, a measurer of time; but for many years it has been settled that such name is specially applicable to instruments having a particular form of escapement. Furthermore, the marine chronometer is so called, because, in addition to the form of escapement already mentioned, it is as large as a small clock, has a dial of from three to four inches in diameter, is made to go from to two to eight days, is always "fixed on the flat," with the face upwards, being secured in its box in gimbals, at right

angles to each other, so as to preserve a level position, whatever may be the motion of the ship at sea. It has, in addition to the usual minute and hour hands, a seconds hand, and a small dial close to the XII, to show how many hours have been run down, or other periods to indicate when the time of winding-up will come.

The marine chronometer is the outcome of the crying want of the sixteenth century that was raised by the sea-going world for an instrument that should assist in finding the longitude on the pathless ocean.

The navigator requires to know from day to day exactly what part of the earth, or rather the waters of the earth, that he is upon. Nothing but sea and sky is within his ken; even the curvature of the globe baffles the search of his telescope; what, then, is he to do under the surrounding circumstances?

The longitude of a place is its position, east or west, from some standard meridian, and therefore its distance. But, as degrees of longitude vary through every circle of latitude, from the Equator to the Poles, north and south, being equal round the Equator, but decreasing to the Poles, calculations have been made to simplify the navigation of a ship. Every capital in civilised countries has its own meridian, the Royal Observatory of Greenwich being that for Great Britain. It is well known that latitude and longitude are reckoned by degrees instead of mile distances, about 69·1 of our English miles to a degree, or 60 nautical miles; that is, upon the Equator only. As all meridian lines cut all circles of latitude at right angles, the latitude having been ascertained, then comes the problem at sea of how to find the longitude or distance, east or west, from our meridian line of Greenwich Observatory. The reader may well ask, what possible connection can exist between the beating of a chronometer escapement and the position on the ocean of the ship that carries it? The hour of the day at any particular part of the ship's course can be determined by measuring the position of any of the heavenly bodies, and referring to astronomical tables that have been prepared for that purpose. Suppose, therefore, that the chronometer on board indicated a given time, and that such indication was widely different from the time of the ship, then it is quite clear that she must be either east or west of the meridian of Greenwich; and how much this "easting" or "westing" amounts to is what the chronometer will help to show.

It may be stated here that the civil day is kept at sea in the same way that it is upon land. The day of the ship's company

always begins at midnight and ends at midnight; having its morning, noon, and evening. As the ship is continually moving from one meridian to another, the noon of to-day will not be the noon of yesterday; consequently, those on board who wish to keep abreast of the day and night of civil life have to set their watches when "observations" are taken by the officers of the ship. But the chronometer is never altered; as it was set to Greenwich mean time at starting, so it will be kept going until it returns to the same starting point at the end of one, two, or three years, as the case may be. If it should indicate noon, and the civil time on the ship be four o'clock in the morning, or eight o'clock in the evening, the chronometer is never altered. Whether easting or westing it shows what distance it is from the Greenwich meridian. With respect to the astronomical day, it has neither morning, evening, nor midnight, but just twenty-four hours. There is only one twelve o'clock in it, and that corresponds to our twelve at night; what is our I, II, III in the morning, is simply 13, 14, and 15 o'clock of the astronomical day, and so on up to 23 o'clock, the 24th hour being marked by a 0. It is always twelve hours later than the civil day, thus—Nine o'clock in the morning of to-day with us is 21 o'clock of yesterday by astronomical time. As a ship changes her course each day, unless when sailing "dead" on the meridian of Greenwich, a very rare occurrence indeed for any length of time, her noon and midnight are also continually changing; hence, as the chronometer has neither noon nor midnight, under the same circumstances the value of the rating of it will be at once comprehended. It becomes, in fact, the standard in conjunction with an astronomical observation, and approximately without one, by which the mariner ascertains his longitude and how far he is from home, as well as from his destination.

Having spoken of our meridianal line, it is now the place to explain the connection between it and the hours of the day of itself and of other places, and first of the course of that line, which is called by British navigators the *first meridian*, or that to which their chronometers are set, and upon which all their calculations are based. The meridian of Greenwich passes northwards near the town of Cambridge, direct through Louth, in Lincolnshire, which is 0° upon it, the same as the starting point; it goes about 2° east of Aberdeen, and half a one east of the Shetland Isles, then away across the Arctic Ocean to the North Pole. Going southwards it leaves England

at Lewes in Sussex, crosses the English Channel, enters France at the mouth of the Seine, a little to the west of Havre, on to the east of Bordeaux, and reaches the Pyrenees at a place called Luz, where it enters Spain. Over the Pyrenees it passes along the provinces of Arragon and Valencia ; a little east of the city of Valencia it crosses an arm of the Mediterranean, cutting the land and entering that sea proper a little over $5\frac{1}{2}^{\circ}$ east of Gibraltar. The course of the line then runs through the Great Desert of Sahara, across Africa to the Gold Coast, by the Gulf of Guinea, runs on to the Equator, covering no more land until it reaches the South Pole. Now it follows that all places east and west of this line are either before or after Greenwich. The Cape of Good Hope, which has recently occupied so large a share of the world's attention, is about 4° to the east of this line. On its continuance round the globe it passes New Zealand, up the great South Pacific Ocean, across the Northern Pacific to the North Pole again. The difference in time with respect to the longitude is as follows :—For every degree upon the Equator east of Greenwich the time is four minutes earlier than Greenwich time, and for every degree west of Greenwich it is four minutes later. As fifteen degrees of four minutes each make an hour, the elementary principles of the calculation can be comprehended at once ; but as the meridianal degrees lessen in space from the Equator to the Poles, the time of each degree lessens also ; this variation is provided for by other means. As the latitude of Greenwich is taken at 51° 31′ N., a degree of longitude there measures 42 miles—more or less.

The means by which the variations alluded to are provided for are to be found in the "Nautical Almanac." This invaluable book of astronomical tables, as applied to the purposes of navigation, was brought into existence by the talent and labour of Dr. Maskelyne, who was Astronomer-Royal from 1764 until his death. The book, although published yearly, is always three years in advance ; thus, the volume for 1883 is that issued during the present year. This pre-publication is to enable it to be placed in the hands of mariners on the most distant stations of the ocean. Notwithstanding, however, that the power of steam has placed every navigable part of the earth within six months' reach of England, the Almanac still continues to be printed three years in advance, as in the old sailing times, before steamships were known. The work is computed under the authority of the Admiralty, and consists of 144 pages, being 12 for each

month. These pages contain tables of every possible kind to assist the navigator in the daily pilotage of his ship. All calculations treating upon the sun, moon, and other heavenly bodies in relation to the earth are found in the Almanac. The reason why such tables are indispensable for their several purposes is to be found in the fact that every body to which they relate are in *some* degree of motion. The sun, moon, planets, earth are all in motion; and not only is the earth moving around its own axis with the speed of 1,000 miles an hour, but the ship that is sailing over it is also, whilst it is travelling in its orbit with the incomprehensible velocity of more than 65,000 miles an hour.

It may well be, then, that the calculations and instruments required in navigation and nautical astronomy are of the most ingenious, elaborate, and delicate character. The "Nautical Almanac" was first published in 1767, having been the offspring of Dr. Maskelyne's "British Mariner's Guide," and it has been improved from year to year, as time went on. As it is always used hand in hand with the chronometer, we will here give an outline of its contents. There are the items of the usual ordinary calender, the phases of the moon, eclipses, and occultations of the stars by the moon and by planets. The noon of each day, the time at which the astronomical one begins, the sun's longitude in signs and degrees to the nearest second; the right ascension to tenths of seconds in time; declination in degrees to the nearest second, with the daily variation in corresponding exactitude; the times all being based upon the Greenwich standard. Then, there are tables of the sun's semi-diameter, in time, passing the meridian to tenths of a second; and also the semi-diameter to tenths of a second in space; the hourly motion to the same minuteness; the logarithmic distance of the sun, and the longitude of the moon's nodes, that is, the point where her orbit crosses the plane of the earth, to the nearest minute, and the latitudes and longitudes of the planets. Other pages contain tables of the noon and midnight of every day, with the moon's latitude and longitude; the moon's age, passage of the meridian, and right ascension and declination to the nearest second, for the noon and midnight of every day; furthermore, there is the moon's semi-diameter and horizontal parallax for the noon and midnight of every day, in minutes and seconds, with proportional logarithms for the parallax. There are tables of the distances of the centre of the moon from the centre of the sun, and from the

nine principal stars near the ecliptic, both for the east and west sides. There is much more information of a similar kind, all supplemented by valuable appendices. The reader will now be the better prepared to understand the great efforts that were put forth by the mechanical minds of Europe to produce an instrument that should have an instant and hourly relationship to all these complications of nautical astronomy; we will, therefore, return to a brief description of their work and its results.

"The true seat of the timekeeping principle in every watch or chronometer resides in the union of a perfectly hardened and tempered balance-spring, and a perfect compensation balance; the weight and diameter of the balance being in just proportion to the motive force." This was the opinion of the late Mr. Charles Frodsham, of the Strand, who is allowed to have been one of the most eminent scientific and practical horologists of the nineteenth century. The science and art of timekeeping could ill afford to lose such a worker, at such a time, for he was always experimenting. One of the cherished objects of his too short but useful life, was to establish for watch mechanism what Sir B. Whitworth has so well done for general engineering, namely, a uniformity of gauge. His principles are no doubt spreading, but, like other valuable innovations, much slower it is feared than the best friends of English horological improvement would desire. He died in January, 1871.

More than a hundred and fifty years ago, M. Zarignon, a French mathematician, said he determined what the true fusee-curve was, and worked out a formula, which need not be reproduced here. The modern horologist treats the fusee as "a mathematical curve which has this peculiar property, that as the chain winds upon it, the distance from the centre of motion of the fusee to the semi-diameter of the chain at that point where it leaves the fusee for the barrel, multiplied by the force of the mainspring acting on the chain at that time shall be what mathematicians term a *constant quantity;* that is, shall be the same whatever point of the fusee may be taken. Thus, suppose the chain, which receives its power to turn the fusee from the mainspring, pulls with a force of 9 oz., and that the distance from the centre of motion of the fusee to the semi-diameter of the chain at that part where it leaves the fusee is $\frac{42}{100}$ of an inch, or, expressed decimally, ·42; then $9 \times \cdot 42 = 3 \cdot 78$. Now, let the spring be wound up to different points at which the chain must pull at which its force will be respectively 12 oz., 18 oz., 20 oz., 30 oz., and 40 oz., the

corresponding distances at which the chain must pull from the centre of the fusee will be respectively ·315, ·21, ·189, ·126, and ·0945 of an inch; for ·315×12=3·78, ·21×18=3·78, ·189×20=3·78, ·126×30=3·78, and ·0945×40=3·78. Thus at any given distance from the centre of motion of the fusee its power to turn any machinery is essentially the same; and as the great or main wheel, which communicates motion to all the rest in the watch or chronometer, is attached to the fusee, their centre of coinciding with each other, it follows that the power at the teeth of the main wheel is perfectly uniform. This power is transmitted through the medium of a train of wheels and pinions till it comes to the escapement, which is of the detached kind." That is the practical application of the theory of the fusee, which is carried out by all watchmakers, and, therefore, well known to them.

The eighteenth century produced a galaxy of luminaries in the horological firmament, among whom the names of Harrison, Mudge, Graham, the first Arnold, and Earnshaw, in England; and Breguet, Berthond, and Peter Le Roy, in France; with many others of lesser brilliancy. Harrison gave to the fusee a maintaining power, and to the escapement a compensation. Arnold left us the detached escapement and the compensation-balance; whilst Earnshaw improved upon his work, and reduced the cost in a very material degree.

The "detached escapement," now known and recognised as exclusively the chronometer escapement, has also given rise to discussions as to its inventor, Arago claiming the honour for Dutertre, a noted watchmaker of Paris about 1724. It is claimed, however, as highly probable, that Arnold invented it without knowing what Le Roy had done. Earnshaw is said to have so improved upon it, that, in the session of 1805, Parliament voted the sum of 3,000*l.* each to the first Mr. Arnold (for there was a son after him) and Mr. Earnshaw for their improvements, chiefly in the balance and the escapement. This escapement beats half seconds, a tooth being let go at every second vibration of the balance.

The constructive form of the modern compensation-balance consists of two metal semicircles, one end of each of which is free, whilst the opposite ends are attached to a flat steel bar, through the centre of which the balance arbour or axis passes, which axis works by means of its pivots in the balance-holes of the movement plates. The semicircular arms are formed of an outside of brass joined by fusion to an inside of steel, and have sliding

weights upon them; some of them have a number of small screws instead of weights. At the ends which are fixed to the flat bar are two heavy screws—one at each end—which are called "mean time screws;" because by their being made shorter or longer the circumferential line of the balance is enlarged or contracted. On the lower part of the axis is a disc called the "impulse roller," having a slip of ruby in it, and another smaller disc called the "unlocking roller." It is against the impulse pallet that the teeth of the 'scape-wheel—the last wheel of the train—strikes and gives the impulsive motion to the balance, which we all notice on looking at a watch. The unlocking roller is for effecting a purpose with the detent part of the mechanism which could only be explained by a drawing, and is far too technical for our present use.

Although astronomical time runs for 24 o'clock, which is the clock of longitude, yet all marine chronometers have their dials marked for twelve hours only. It may seem curious to us of the non-scientific world, but astronomers insist on having their chronometer dials figured to 24 o'clock: they cannot endure the double twelve, and argue that such a mode of reckoning time should not exist.

Marine chronometers are invariably fitted with helical springs; that is, springs in the form of a cylinder, instead of being flat spirals, as in watch work. Both Harrison and Le Roy had flat spirals to their chronometers, but we believe that Arnold preferred and adopted the cylindric form; indeed, he is credited by many persons with having invented it. Of course, what had been previously known from Dr. Hooke's lecture, "*Potentia Restitutiva*," settles that point. Arnold's preference for the cylindric form rested upon the assumption that—"Whether the balance vibrates an arc of 230 degrees from its point of rest, in its forward direction, or revibrates 230 degrees in its backward direction, making altogether 460 degrees, the cylindrical figure of the spring is still preserved. Upon the length of this spring depends the isochronism of the vibrations of the balance; and in every spring of a sufficient length there is a place where all the vibrations—long, short, and intermediate—will be performed in equal times." The theory being that, because every coil of the cylinder was at an equal distance from the geometrical axis, all the vibrations would be performed in equal times. This theory, however, is now abandoned, experience having proved that quite as good timekeeping has been, and can be, got from the use of a flat spiral, all other

things being equal. Balance-springs, whether flat or helical, consist of from eleven to thirteen coils.

The most important artist in connection with the chronometer is the "springer and timer," and with that part of the business is associated the "adjuster." A man in whom these qualities are combined must have great skill, born with an intuitive faculty, and be well acquainted with both the theory and practice of chronometer-making. It is a subject for admiration to see him take a piece of spring wire, put the requisite coils upon it, temper it, make it the exact length, and pin it into its proper place in the instrument. The fingers of such a worker must be quite as much educated as his head has been.

From the fact that all metals expand by heat and contract by cold, when the chronometer has been set going, then commences its educational training. This is known by the name of "adjusting," and consists in subjecting the instrument to a series of artificial temperatures, from freezing-point up to ninety degrees of heat. The lower temperatures are produced by an ice-box, and the higher ones by a heated gas oven. This adjusting occupies many weeks, and during that time a regular debtor-and-creditor account is entered every day in an adjusting ledger against every instrument in hand. Balance-springs will have occasionally to be changed, and so will balances themselves. The springs may not be found to be exactly what is wanted, whilst the balances may be either too light or too heavy for their vibrations. There is a tool called the "adjusting rod," which is a lever having a watch-key square at one end, whilst a weight is upon the rod itself, free to slide backwards and forwards as wanted. In the best form of this rod, that of the Frodsham, the weights are cylindrical, having screws in them to fasten them to the rod during the working of it. The principle is that of the common steelyard, and its purpose is to measure the strength of a mainspring to the greatest nicety. The key end is screwed in the winding-square of the chronometer, and the exact pull of the mainspring can be shown in a few seconds. Chronometer-makers all use an adjusting rod of some kind, and so do makers of high-class watches; by its means the adjuster is materially assisted in his work. Not only does the balance-spring bend to the influence of temperature, but the balance also. The late Mr. Charles Frodsham, in his excellent treatise on "The Laws of the Isochronism of the Balance-Spring," says that Daniel Bermouth, the celebrated mathematician, in 1747, conjectured that changes of temperature affected

the going of timekeepers. This became an established fact through the experiments of Berthond in 1773. It still continues, more or less, and will continue, notwithstanding the great exactitude to which chronometers have now been brought. The object of the adjuster is to get what is called "a rate" out of his instrument, whether a gaining or a losing one, but *a rate.* And here the balance-weights and the mean-time screws on the balance—already spoken of—come into use. The full once-round turn of these screws, in or out, may make the difference of a minute a day, fast or slow, according to the sensitive nature of the balance-spring and of that of the balance itself. All these differences the adjuster has to watch and correct. To show the perfection to which the art of chronometer-making has been brought, it may be mentioned that the best have gone, and do go, to fractions of a minute in a year! When the adjuster has done his work, he passes the chronometer to its owner, accompanied by its written character carefully copied from the adjustment ledger, which character is called its "rate." When it goes to sea, that rate is entered against it, and its performance is vigilantly scanned day by day, and judged by the astronomical observations made. There it has to do its work under the stern criticism of those observations and the "Nautical Almanac" for, probably, two or three years. As it was set to Greenwich mean time at its departure, it is compared with Greenwich mean time on its return, and the difference entered in its book.

There is a yearly trial of chronometers at the Greenwich Observatory, but they must all be well-seasoned ones to go there. They do not "adjust" at Greenwich; they only give the going in different temperatures, without touching a single instrument, except to wind it up. The trials last about thirty weeks, and the performances, week by week, are published at the finish for the information of "the trade," in the journal of the British Horological Institute. The course begins in the first week in January and terminates about the last week in July. There is nothing to pay by chronometer makers, the Secretary to the Admiralty being the official from whom permission has to be obtained. No other instruments are admissible except those belonging to the Navy or to chronometer makers, on the conditions above named. The subject is a large one in all its details, but want of space prevents further treatment of it. We have said that all chronometers are set by Greenwich mean time. That is so, but it must be stated that there are three kinds of

time kept at that Observatory, namely, solar, sidereal, and mean. A sidereal day is the measure of the revolution of the earth by a star, a solar day by the sun, and a mean-time day by an imaginary sun that is always supposed to come to the same meridian at the same instant every day in the year. In observatories there are sidereal clocks and chronometers, as well as mean-time ones. The transit instrument ascertains what a sidereal day is by fixing the instant of the appearance of the same star the second time on the meridian; it is shorter than a solar day by nearly four minutes; but mean time is the equation of all the mean solar days throughout the year. We cannot at present go further into the subject.

We will state something which we do not think has been heretofore published, namely, that in the late Arctic Expedition a number of chronometers set to mean time were sent out, the better to enable the ships to ascertain noon and midnight in the one day and one night of the polar year.

We have mentioned the British Horological Institute. We may be permitted to speak further of it. It was founded many years ago for the purpose of establishing a school of horology in England. It has a monthly professional journal, and has recently constructed a new set of buildings for itself. These buildings contain ample accommodation for teaching, meetings, offices, and committee-rooms. It has a museum and a library, and there are two astronomical regulator clocks there, and two deflecting time needles. One of the clocks is connected by the electric wire with the great standard clock at the Observatory, the pendulums of both beating in unison, whilst the time needles are also in electric contact. The Institute is most convenient for its purpose; it has for its president Sir Edmund Beckett, Bart., and is entirely supported by the trade, and by the lovers of horological science. It is, unfortunately, in debt, and to those who feel an interest in the advancement of horological science these facts are stated. Any gentleman calling and giving his name will be obligingly attended upon and shown over the building by the secretary, and have everything fully explained to him. More need not be said.

CHARLES STUART MURRAY.

THE PROGRESS OF LONDON.

If a motto were required for a paper on the Progress of London, it would scarcely be possible to find a line which more accurately describes the growth of the great city, than Virgil's "*Vires acquirit eundo*," for from whatever period we commence our retrospect, and under whatever aspect we regard it, political, municipal, social, religious, sanitary, or educational, its movement has been little less than marvellous, and as we write, every day, nay, as the statistician can show, every hour and every minute adds to its population and to its institutions. Looking back to the London of the middle ages, and comparing it with the London of the present day, the first point which strikes the observer is the extension of its area. The map of Ralph Aggas, published in Elizabeth's reign, shows us a London which was almost entirely contained within the walls of what is now commonly known as the City—an area of about one square mile—Smithfield being then literally, as its name implies, open ground; while westward a few houses marked the Strand, which stretched down to the river bank; St. Giles's was a village literally "in the fields;" St. John's Wood was a thicket; the road to Hampstead was a country walk; and the road to Oxford commenced in the then rural thoroughfare which is now Oxford Street. The plainest evidence of the earlier growth of London is furnished by the weekly bills of mortality—the primal form of what are now known as the returns of the Registrar-General—which in 1604 were extended to St. Giles-in-the-Fields, Clerkenwell, Shoreditch, Whitechapel, and St. Martin's-in-the-Fields (including, at that time, the now separated parishes of St. James, Westminster, and St. George, Hanover Square), and to Bermondsey on the south-east. In 1626, St. Margaret's, Westminster, was added, and in 1636, Hackney, Islington, Stepney, Lambeth, St. Mary, Newington, and Rotherhithe were included, this forming the limit to which the bills were extended. In 1801, when the first census was taken, under Mr. Rickman's direction, he included in the metropolis Chelsea, Kensington, Marylebone, Paddington, and St. Pancras. In 1840, when the new tables of mortality were commenced, the area was still further enlarged to Fulham and Hammersmith on the west; Stoke Newington, Bow, and Bromley on the east; with Camberwell and the Greenwich

district stretching to Deptford and Woolwich on the south-east. The next addition was made in 1844, when Clapham, Battersea, Wandsworth, Putney, Tooting, and Streatham were added, while two years later Hampstead and Lewisham were included and served to complete the London to which the present tables relate. Looking at the London thus described to which the tables of the Registrar-General refer, and which, for the sake of distinction, may be termed Registration London, we find from the last report issued, bearing date 7th April, 1879, that its area is 78,080 acres, or 122 square miles, including 2,718 acres of the Thames; this is equal to 31,597 hectares, or 316 square kilometers. The length of the streets and roads is about 1,500 miles, and their area nearly 12 square miles. The area of London being 122 square miles is equal to a square of about 11 miles to the side. Assuming that it is crossed by straight roads at equal intervals, there would be 136 such roads, each 11 miles long and 142 yards apart. The number of new houses built last year was 17,127, the number of new streets formed 352, while the new squares opened numbered 3, a total length of 55 miles 153 yards. The number of houses built since 1849 has been 324,825. The population of the London thus described was 958,863 in 1801; 1,138,815 in 1811; 1,378,947 in 1821; 1,654,994 in 1831; 1,948,417 in 1841; 2,362,236 in 1851; 2,803,989 in 1861; and 3,254,260 in 1871, while in the middle of 1878, according to the Registrar-General's estimate, it had risen to 3,577,304, consisting of 1,674,351 males and 1,902,953 females. Its population approaches the aggregate of 22 other large towns of the United Kingdom, and nearly equals the aggregate population of Paris, Berlin, or Vienna; or with the suburbs it equals the population of the capitals of France, Prussia, Russia, and Austria. The annual rate of increase per cent. from 1851 to 1861 was 1·73, and from 1861—71 it was 1·49, the decrease in the rate of growth being due to the migration of the people to districts in what is termed "the outer ring," or, in other words, to the fact that as the first London of the City proper gave place to the London of the earlier bills of mortality, and as this in its turn was extended to the London of the census takers and the Registrar-General, so now the metropolis is being enlarged to the radius of the police district, drawn from 12 to 15 miles round Charing Cross. The population of this Greater London in 1851 was 2,680,735; in 1861, 3,222,720; and in 1871, 3,883,092; the annual rate of increase per cent. of population being 1·86 from 1851 to 1861,

and 1·88 from 1861 to 1871. As a proof of the tendency of the population to extend its area of residence, we find that in the outer ring—the district formed by the overlapping of the police boundaries over the registration district—the annual rate of increase per cent. of population, which stood at 2·77 between 1851 and 1861, had risen to 4·19, or more than 50 per cent. in the next decade, and has gone on steadily increasing since that time. With these figures before us, it is impossible to deny the justice of the remark of the Registrar-General on the census of 1871, that "looked at in any light the magnitude and growth of London are marvellous. It has endured many struggles since its first obscure origin; it was not accepted without trial as the capital of the kingdom; at every increase it had to encounter some fierce epidemic; pestilences of various kinds infested it; the black death did not spare it, nor the sweating sickness; great plagues pursued it through the seventeenth century; great fires burnt down its combustible dwellings; Queen Elizabeth attempted to stop its growth, so did the Stuarts; it was long left imperfectly supplied with water, light, police, government; its air was soiled with smoke; its sewers were at first badly made, and then cesspools were discharged into the river from which its waters were drawn and thousands died of the last Asiatic plague; it was prized by Shakespeare and Milton, but Cobbett nicknamed it The Wen; Price called it one of the graves of mankind, and the State showed it no favour; yet here, unsurpassed by any city in health, full of riches, and rich above all things in men, she stands by her river, her railways, her public edifices, her grand embankment, her magnificent bridges, the Queen City of the world." Even if we decline to adopt in its entirety the somewhat effusive eulogy of the retiring Registrar-General on the great city, the fact remains that its progress is unique in the history of Europe.

Looking at the health rate of London its mortality, taking its density into consideration, is more striking than its magnitude. With a density of 29,322 persons to the square mile, the mortality under the normal rate, as estimated by the Registrar-General, should be 35·2 per 1,000;* but instead of this it was from 1874

* The following note shows the mode in which this calculation is made:—The mortality increases with density of population in 593 districts of England and Wales; and the law of increase is such that, for every increase of density the mortality increases nearly as the 8th root of the density. Thus, the mortality being m at any known density the mortality at any other density (m') will be $m' = m\left(\frac{d'}{d}\right)^{\cdot 11993}$ or $d^{\cdot 12} : d'^{\cdot 12} :: m : m'$. Thus, in 345 districts with a density of 186 persons to a

to 1878 only 22·8. The consequence of this exceptional health rate—due, the Registrar-General asserts, to our drainage and cleanliness—is that the deaths are so low in London as 83,695, and the births being 129,184, the registered births exceed the deaths by 45,489, which exceeds the estimated increase of population (43,693) by 1,796. In the 17th century the deaths equalled the births in number. The density of the population is continually increasing; thus, while in 1842 there were 16,367 persons to a square mile, there were 28,602 to a square mile in 1876; and that alone would cause an increase of mortality which would, according to the law that has been deduced from the returns for all England, raise the mortality from 24·5 in 1840–4 to 26·2 in 1874–8. Thus, the deaths should have been at this rate 91,423 a year in the five years 1874–8, whereas they actually were 79,245. The reduction in the rate of mortality saved 12,178 lives annually in the five years in London. This satisfactory condition of things may, the Registrar-General holds, be fairly ascribed to sanitary improvements, especially to our improved water supply and to the efforts of the health officers appointed in every district of London, who have made many useful suggestions which have been partially carried out. All this has reduced the mortality from 26·2, the corrected rate, as has been shown the increase of density would imply, to 22·8 per 1,000; so 12,178 lives are saved annually. But while much has been really done, still more, as the Registrar-General points out, waits for the reformer's hand. The waters of the Thames partially contaminated are still supplied to London, and the branch sewers are still imperfect, while the sewers communicate in many cases with the interior of the houses, so that much remains to be done, which may be pointed out by skilful health officers acting under one head. The death rate, for instance, is capable of still further reduction as may be proved to demonstration. There are 53 districts in England and Wales which experienced a mortality of

square mile the mortality was 19·16; what should then the mortality be, according to this law, in London, which had, in 1878, 29,322 persons to a square mile?

$$186^{\cdot 12} : 29322^{\cdot 12} :: 19{\cdot}16 = \left(\frac{29322}{186}\right)^{\cdot 12} \times 19{\cdot}16 = 35{\cdot}2.$$

This does not imply more than that in the present state of impurity of atmosphere in English districts the mortality increases at this rate. We can conceive a state of things in which the population would be as dense as the population is in a ship, or as it is in a well organized barrack, without any sensible increase in the mortality. Our calculation shows that at the density prevalent in London the mortality would, at the usual law, be 35; so London is healthier than the majority of English towns; so is Manchester, for it should experience a mortality of 38, whereas the actual mortality was 28. It is still much less healthy than London, for London is 23, Manchester is 28 per 1,000.

16·75 per 1,000 in the 10 years 1861–70; in the years 1849–53 the mortality was at the rate of 17·53 in 63 districts that were taken as the basis of the Healthy Life Table, which makes the mean duration of life 49·0 years; and this implies a mean corrected annual rate of mortality of 20·4. Upon this ground the Registrar-General assumes that the mortality of healthy districts should not exceed 17 per 1,000, and as the mortality in London has already been reduced from 25 to 23 he insists upon the possibility of a still further reduction until 20 is reached, even if the ideal standard of 17 cannot be obtained; in fact, he contends that in none of our towns ought the mortality to exceed 20 per 1,000.

Looking at the annual rates of mortality in London, during the twelve years 1867–78, at five groups of ages, per 1,000 persons living at each group, and dividing this period into two equal periods of six years, it appears that the rate of mortality at all ages declined from 23·6 in 1867–72, to 22·8 in 1873–8. The largest proportional decline of mortality occurred among children under five years of age; the death-rate at these ages averaged 78·5 per 1,000 in the six years 1867–72, but declined to 73·4 in the more recent six years 1873–8. Among those from 5 to 20 years the rate declined from 6·0 to 5·2 per 1,000 in these two periods; and between 20 and 40 years, from 9·8 to 9·2. The rate among persons aged upwards of 40 years appears to be slightly increasing; between 40 and 60 years the rate in the two periods rose from 29·9 to 21·5, while the increase among those aged upwards of 60 years was from 73·5 to 76·5 per 1,000. While the rate of mortality was 23·5 in the year 1878 in Inner London, the rate was only 16·9 in the Outer Ring; or in the Greater London 22·3 per 1,000. The density of population was 41·7 persons to an acre in the Inner London, 1·7 in the Outer Ring; or 8·7 persons to an acre in the Greater London. For the purposes of comparison it will be of interest to add the following figures showing the mortality per 1,000 in London, Liverpool, and Manchester.

Years.	No. of Years.	London.	Liverpool.	Manchester.
1865–66	(2)	25·5	40·2	33·5
1867–70	(4)	23·8	31·1	31·8
1871–74	(4)	22·8	30·1	30·2
1875–78	(4)	22·9	27·8	28·6

Carrying our investigation into a still wider field, we find London well able to hold its own. The last annual rate of mortality in Calcutta was 37·7, in Madras was 48·0, in Alexandria was 45·4. In the 21 European cities the mean mortality was 28·9; while the birth-rate (in 17 European cities) was 35·9. The following cities experienced a mortality below the average of the 21 towns; Christiania 18·5, Copenhagen 22·0, Stockholm 22·4, Geneva 23·6, Amsterdam 24·4, Paris 24·6, Dresden 24·7, The Hague 26·4, Hamburg 26·9, Rotterdam 27·3, Brussels 28·0, Venice 28·7. In the following cities the mortality was above the average; Vienna 29·6, Rome 29·8, Berlin 29·9, Breslau 29·9, Turin 31·1, Naples 33·1, Munich 34·6, Trieste 36·2, Buda-Pesth 40·3, St. Petersburg 47·1. The mortality of New York was 24·8, of Brooklyn 20·1, of Philadelphia 18, and of Montreal 30·9.

Turning from the population of London to the arrangements for the local government of the people, it cannot be said that the progress made has been altogether satisfactory, and even if we do not go so far as to describe the existing state of affairs with Mr. Storr, in the "Fortnightly Review" for June, 1873, as "anarchy," it can scarcely be contended that the condition of divided responsibility represented by the numerous bodies whose demands appear upon a householder's rate-paper is desirable. Even the areas over which the various authorities exercise their sway are not conterminous, while their duties are by no means clearly defined. New bodies, such as the Metropolitan Board of Works and the School Board, have been called into existence of ate years with specific functions, but while the City proper enjoys its municipal government, and lives in peace and comparative luxuriance under the genial rule of the Lord Mayor, the more densely populated portion of the metropolis is left to the tender mercies of the vestry in whose election or fitness for the important duties they have to discharge the scantiest possible interest is exhibited by the ratepayers. So glaring are the evils arising from this anomalous state of things, that a central municipality for the whole metropolis has, on many occasions, been advocated, and in a leading article on the subject, on the 10th of May, 1873, the *Times* declared that "both upon the first principles of civil administration, and not less upon the facts of the case, it is impossible to deny that a complete municipality for the whole metropolis is desirable and inevitable." At the same time, while centralisation is needed, much has been accomplished for the promotion of the public

health, and if a comparison were made between the state of what may be termed underground London, on which the health of the inhabitants so largely depends, as it was in 1847, when the Metropolitan Commissioners of Sewers—the successors of the eight District Boards—commenced their labours, and the condition of things resulting from the main drainage scheme of the Board of Works, it would be seen at a glance that a marvellous work has been done, costly enough doubtless, but, as the result has proved, conducive to the public well-being. In 1848 the City of London was included in the survey which the Commissioners held, but they failed to accomplish any result of real importance, until Mr. (now Sir J.) Bazalgette, their chief engineer, was ordered to draw up a scheme for the drainage of the whole of London, which was subsequently adopted by the Metropolitan Board of Works and commenced in 1849. The vast network of pipes amounting to more than 1,300 miles in length, and conveying the sewage to the Thames at Barking Creek, was provided, under the terms of the Act of 1855, "for the better local management of the metropolis," which called the Metropolitan Board of Works into existence, and entrusted the Board with the power "to make such sewers and works as it may think necessary for preventing all or any part of the sewage within the metropolis from flowing or passing into the River Thames in or near the metropolis. The drainage of London was only one of the duties allotted to the Metropolitan Board, another of its functions being the provision of paving for the public thoroughfares in the place of the broken stone road named, from its inventor, Macadamized. Even after many years of experiments, no finality of selection has been arrived at, but in this, as in matters where the public comfort is concerned, there has been a very distinct and noticeable improvement.

The supply of water to the metropolis, which has formed, and is likely to form, a vexed question for some time to come, is even now, in quantity at least, in excess of the average in any other city in the world; and all that is needed is to secure a constant supply and to enforce due regard to its purity. The average daily consumption of water in the metropolis is estimated at 120,000,000 gallons. In order to compel the companies to do their duty to the public in return for the monopoly they enjoy, public analysts appointed by the Government are required to test samples of water, and thus we have the elements of a satis-

factory solution of the difficulties which stand in the way of a complete reform.*

Looking next at the lighting question—scarcely less important in its way than that of water supply—it becomes difficult in these days of electric lighting and improved gas burners to imagine the condition of London in what were literally the dark ages when its only light was derived from oil, and yet only seventy-two years have passed away since the first attempt was made to light the great city with gas. It was in the year 1807 that the plan, already tried in the provinces, and with special success by Mr. James Watt at Birmingham, was introduced in London, where a small apparatus was set up in Pall Mall from which the lamps on one side of the street were supplied with coal gas, oil being still used for those on the other. The success of the experiment did not, however, suffice to overcome the conservatism of those who at that time held sway in the local management of the city, and even the scientific men of the day, including Sir Humphry Davy, condemned the new system as unsafe. For the time the lovers of darkness almost Cimmerian prevailed; but in 1810 the promoters of the new light contrived to enlist the sympathy of the House of Commons, and after much opposition a Bill was passed enabling the King to grant a charter within three years to a company for the lighting of a small part of the metropolis with inflammable gas, and the Gas Light and Coke Company was established. Its first works were erected in Peter Street, Westminster, and on the last day of the year 1813 Westminster Bridge was lighted in the new style, and became in consequence a fashionable promenade. The city of Westminster thus enjoyed the honour of leading the way in this great reform, and in 1814 the whole of the streets in St.

* Dr. Frankland thus reports on the water supplied to London during the year 1878:—"London (inner circle) was supplied during this year by eight companies, with a daily average of 129,657,848 gallons of water. Of these 65,063,839 gallons were often much polluted with organic matters of animal origin; 56,501,022 were occasionally so polluted; whilst only 8,092,987 gallons were uniformly delivered in a pure and wholesome condition. The temperature of the Thames water varied from 4°·3 C. (39°·7 Fahr.) in January and December to 20°·3 C. (68°·5 Fahr.) in July. The higher temperature just mentioned causes the water to taste vapid and disagreeable. The temperature of the Lea water ranged from 3°·8 C. (38°·8 Fahr.) in January and December to 19°·8 C. (67°·6 Fahr.) in July, when this water was also rendered unpalatable. The deep-well water delivered by the Kent and Colne Valley Companies showed a minimum temperature of 7°·2 C. (44°·9 Fahr.) in February, and a maximum of 13°·4 C. (56°·1 Fahr.) in July, August, and September. The temperature of this water, even in the hottest weather, never interfered with its palatability. There was more organic impurity in the Thames and Lea waters in 1878 than in previous years. The proportion in 100,000 parts of the water was 1 in the Kent, Colne Valley, and the Tottenham water; 3 in the Lea water, and 4 in the Thames water."

Margaret's parish were lighted by gas, and the old oil lamps were discarded.

The fears of the citizens still prevented the general acceptance of the now universally admired light, and it was not until machine-made iron pipes were introduced in the place of the old musket barrels and other tubes used at first to convey the gas from the mains to the houses that the new light was generally adopted. In 1817 the City of London Gas Company was formed for the City; in 1821 the Imperial Company undertook to supply the north of London outside the City; and other companies were formed in succeeding years until no fewer than thirteen—since reduced to six by amalgamation—were at work. From 1830 to 1857 the companies were allowed to compete with each other, with the same mistaken liberty which had been accorded to the Water Companies, sometimes as many as four companies being at work in the same thoroughfare; but in 1857 the companies, wearied of this most unsatisfactory system, voluntarily adopted the plan recommended by the Commission of 1822, presided over by Sir Thomas Congreve, and divided London into districts, each supplied by its own company, a system definitively legalised in 1860 by the Metropolis Gas Act. Various attempts have been made by the Corporation and the Metropolitan Board of Works to take over the task of supplying London with gas, but the companies have so far kept the very remunerative work in their own hands. At present the share and loan capital of the united companies, as estimated by Mr. Harry Chubb in the valuable paper which he read before the Statistical Society in 1876, is 11,000,000*l.* sterling, and the maximum rate of dividend allowed to be paid on the total share capital averages 8·8 per cent. A million and a half tons of coal are used every year in the manufacture of gas for the metropolis, and the quantity of gas made annually exceeds 13,000,000,000 cubic feet. The number of lamps in the streets is more than 55,000, and the mains of all the companies, varying from 3 inches to 4 feet in diameter, reach an aggregate length of more than 2,000 miles. The normal price of gas in London is 3*s.* 9*d.* per 1,000 feet, but this, though high, as Mr. Chubb showed in his paper, is far below the amount charged in other capitals, the average for an inferior article being:—In Paris, 6*s.* 7¾*d.*; Berlin, 4*s.* 3¾*d.*; Amsterdam, 5*s.*; Vienna, 5*s.* 8½*d.*; New York, 10*s.*; other cities in the United States, 12*s.* The fixed standard of the illuminating power in London is 16 candles, and although the inhabitants do not always obtain what they

pay for in this particular, they have the remedy in their own hands, and a little combination of householders is all that is needed to secure it.

In means of locomotion, as in arrangements for lighting, the achievements of the last quarter of a century have been very considerable, and the Metropolitan or Underground Railway is in itself a monument of the energy and courage of our time. Apart from all questions of speed of movement, so important to men of business, the dangers of the overcrowded streets had long formed a powerful argument for relieving the thoroughfares by mechanical arrangements of their overgrown traffic; and so far back as 1840 it was calculated that 11,010 vehicles passed King William Street every day in twelve hours, giving an average of 917 per hour, or 15 per minute, and this was before the increase of traffic developed by the London Bridge Railways. Until 1634, when Captain Bailey set up the first hackney coach-stand at Essex Street, Strand, the number of such carriages was very limited, the competing conveyance being the sedan chair—so called from the French town where it was said to have been first made—for the supply of which Sir Sanders Duncombe obtained a licence from the King, who also issued a proclamation against the use of hackney coaches, to which no one was adjudged to be entitled unless he could keep four horses fit for His Majesty's service. The hackney coaches gradually superseded the chairs, and those in turn made way for the modern omnibus and cab, which to the number of nearly 11,000 now ply for trade. The present number of carriages licensed, as shown by the returns from the Public Carriage Office, is 4,014 four-wheeled hackney carriages, 4,877 two-wheeled, and 1,556 stage carriages. That the number continues to increase is proved by the fact that the licences in 1878 exceeded those issued in 1877 by 438.

While the means of locomotion have thus been increased the provision of improved thoroughfares in the great city has not been neglected; and although many long-talked-of schemes, such as the new street connecting Tottenham Court Road with Charing Cross, still remain to be accomplished, the Thames Embankment and the Holborn Viaduct may be instanced as proofs of the enterprise which has characterised the local management of the last half-century. We have not, it is true, obtained the London which Wren, as "Surveyor-General and Principal Architect," sketched after the Great Fire, with its embankment stretching from the Temple to the Tower, and his threefold arrangement

of streets, which would have provided line after line of wide thoroughfares; but we have at last realised a plan of improvement which the great architect of St. Paul's would have approved, and the Victoria and Albert Embankments on either side of the river are admirable alike in design and in execution. The completion of the work was not, however, attained without great difficulty; the first scheme for embanking the river, in fulfilment of Wren's long anterior designs, dating back to the commencement of the present century, when a Committee of the House of Commons discussed the matter, and Mr. Jessopp and other civil engineers prepared plans which met with the approval of the Parliamentary Committee, but were not adopted. In 1824 Sir Frederick Trench put forward his scheme for an embankment on the north side of the river from London Bridge to Scotland Yard, answering in many respects, with the exception of the eastern close to the embankment, to the work which has since been accomplished. In 1835 the Committee on the Rebuilding of the Houses of Parliament again discussed the subject; and in 1840 a scheme by Mr. Walker to embank the river on both sides from London Bridge to Vauxhall was considered in the House of Commons. Two years later, a Royal Commission, dealing with possible improvements of the metropolis, took up the question, and, as a result, a scheme of Mr. Page's was commenced by the embankment of the river between Vauxhall Bridge and Chelsea Hospital. In 1855, and again in 1860, another Parliamentary Committee sat for some time, and recommended the formation of an embankment on the north shore, with a roadway and a low level sewer under it. This was sanctioned and commenced in 1864, and completed in July, 1870, when, on the 13th of July, the roadway under which the Metropolitan Railway runs its trains was opened by the Prince of Wales. The Victoria Embankment, as it is termed, is about 1¼ mile long, and 100 feet in width, the roadway being 64 feet, the footway 16 feet, and the space devoted to trees 20 feet. The most remarkable part of the great engineering triumph of Sir J. W. Bazalgette is the embankment wall, which is carried down 3½ feet below Trinity high watermark, and 14 feet below low water. The total area of land reclaimed from the river is 37¼ acres, 19 of which are occupied by the roadways and gardens. Built in with the embankment wall is the low level sewer, and above it is a subway for gas and water pipes. The total cost of the work was 1,260,000*l.*, and the purchase of property amounted

to 450,000*l*. It may give some idea of the magnitude of the undertaking if we cite the items of material employed:—650,000 cubic feet of granite; 80,000 cubic yards of brickwork; 140,000 cubic yards of concrete; 500,000 cubic feet of timber, &c. The Albert Embankment, on the southern side, was commenced at Westminster Bridge, under St. Thomas's Hospital, in 1866, under the direction of Sir Joseph Bazalgette, Engineer-in-Chief to the Metropolitan Board of Works, and opened in 1868, but it only consists of a footway, the general traffic being still confined to the roadways. Thus north and south alike the work which was sketched by Wren, and talked of from 1800 to 1860, has at last been accomplished; and, as we write, the northern embankment is being utilised for the trial of yet another scheme of metropolitan improvement—the Electric Light.

Holborn Viaduct—the other great engineering feat in connection with the metropolitan roadways to which reference has been made — has proved a boon to man and beast, for the agonies endured by the unfortunate cattle in descending and ascending Holborn Hill were painful to witness. The works for the erection of the viaduct, which was to span over the Holborn Valley, were commenced by the Corporation in May, 1863, and from first to last cost more than two millions; no small part of the outlay being involved in the compensation awarded to persons whose premises were destroyed. Taking this great work as it now stands it is difficult to exaggerate the benefit which has resulted from its accomplishment; but those who remember the state of the old hill and valley on a frosty day can best estimate the value of the undertaking. The length of the viaduct from Newgate Street to Holborn is 1,400 feet, and the carriage way of 80 feet is flanked on either side by a footway of 15 feet in width. As an episode in this chapter of London Progress it may be mentioned that the remains of 11,000 or 12,000 persons were disturbed in the churchyard of St. Andrew's, Holborn, during the progress of the work, and transferred to Ilford Cemetery. The viaduct was opened by the Queen on the 6th of November, 1869, when Her Majesty also opened the new Blackfriars Bridge. In the way of street architecture the formation of Queen Victoria Street, as a complement to the Victoria Embankment, stretching from Blackfriars to the Mansion House, and the removal of Northumberland House, at Charing Cross, to make way for Northumberland Avenue, which opens out the Embankment to

the western thoroughfares of the metropolis, may be mentioned; while the freeing of the bridges completed only twelve months ago has served to render locomotion in cab or carriage comparatively easy, until the pedestrian can now choose between a crowded street and a fine river side and tree-planted way from west to east.

Looking next at what has been termed by a Quarterly Reviewer, "The London Commissariat," we have again a picture not only of unceasing activity, but of far from inconsiderable progress in the food supply of the great population, and in this matter it must be borne in mind that London not only feeds itself, but to a very large extent furnishes the rest of the country with what it needs in the way of fish, flesh, and fowl. For the first of these edibles we still, strange to say, possess only one market, Billingsgate, the well-intentioned effort to establish a fish market in East London in Lady Burdett Coutts's palatial buildings at Haggerston, having failed. To Billingsgate the Great Eastern Railway brings its tons of Yarmouth bloaters, the South Western its mackerel, the North Western its salmon, and other fish from Ireland, Scotland, and North Britain, while from the Cornish and Devonshire coasts we have mackerel and pilchards by the Great Western line, and oysters to the number of some 15,000 bushels by the Brighton and South Coast. When we remember that half a century ago all the oysters were brought to Billingsgate by water, we have an evidence of the revolution which the iron horse has introduced in our commissariat as in our means of communication

In meat and poultry the great dead meat market in Smithfield, with its admirable sanitary arrangements, is the chief centre of supply; the cattle market on the same spot, which was formerly one of the sights—and from the Prevention of Cruelty to Animals point of view not the most satisfactory sights—of London, having being removed to Copenhagen Fields, Islington. At Smithfield, in what was in the 16th century called "Ruffian's Hall," because of the resort which it furnished for the scum of London, especially at the time when the Bartholomew fairs and cattle shows took place, the cattle market was held from 1150 until 1852, when its removal to Islington was decreed by Act of Parliament. It was in its palmy days the largest cattle market in the world, and under the Statutes of Smithfield, as the City laws for its regulation were termed, there might be shown 4,000 beasts, and 30,000 sheep, the latter in 1,509 pens with 50 pens for pigs. The City received a toll of 1*d.* on each beast exposed for sale, and on sheep at the rate of 1*s.* a score. The sales were

cash transactions, the primitive shake of the hand being the final stage of the buying process. More than 7,000,000*l.* is said to have been annually paid away in this fashion, the number of animals sold every year reaching more than a quarter of a million cattle, and from a million to two million sheep, besides a quarter of a million pigs. Clare Market, off the Strand, where as lately as 1850 animals were slaughtered, has also ceased to be used for live meat. The removal of the cattle market to Copenhagen Fields, where it was opened by the late Prince Consort in 1855, enabled the Corporation to make plans for the establishment of the dead meat market in Smithfield, and for the abolition of Newgate Market, which had from the earliest times been the dead meat retail market of the metropolis. The Act for erecting the new buildings in Smithfield was obtained in 1860, and the buildings designed by Mr. Horace Jones, the architect to the Corporation, were commenced at an estimated cost of 200,000*l.*, exclusive of 2,350,000*l.* for the purchase of property. The necessary excavations involved the removal of about 350,000,100 loads of earth weighing about 172,000 tons, for the railway and other underground departments, the buildings above being supported on twenty-one girders carried across the entire space of 240 feet, on wrought-iron stanchions. The market, in shape a parallelogram, is 631 feet long and 246 feet wide, covering 3½ acres, the public roadway dividing the premises into two parts being 50 feet wide. The main point in the vast undertaking was the provision of railway communication direct to the spot, and the Great Western, Metropolitan, Midland, and Chatham and Dover lines run into and through the depôt. It is calculated as a test of the utility of the scheme that the market can accommodate a meat supply for three millions of people, and it may perhaps be reckoned as first among the foremost of the useful works which the Corporation of the City of London has undertaken in modern times for the public benefit. The market, which was opened in November, 1868, has proved a decided success, and with the added sections for the sale of poultry it is literally unique among the markets of the world. Leadenhall Market in the City still holds its own as the great emporium for poultry and game, and for fruit Covent Garden, in which great improvements have been made, stands first.

The arrangements made for the protection of life and property in the metropolis deserve a word of notice. Within the bounds of the City of London proper the task is entrusted to a police

force under the control of the Corporation, just as at the city police courts the Lord Mayor and Aldermen are the sitting magistrates. Outside this limited area the metropolitan police have complete jurisdiction, subject only to the control of the Home Secretary. This force, having been established in 1829, has now entered on the fiftieth year of its existence. At the date of its formation the population was 1,468,442, and the strength of the police force was fixed at 3,341. On the 31st December, 1878, the population of the Metropolitan Police District was 4,534,040, and the authorised strength of the police was 10,477. Of these, 9,206 were available for duty in the metropolis, viz., 21 superintendents, 544 inspectors, 728 sergeants, and 7,913 constables. Some idea of the work which falls to the lot of this well-abused but underpaid and, on the whole, admirably conducted body of men, may be formed from the Chief Commissioner's Report to the Home Secretary for 1878, from which it appears that not only are we "not better than our fathers," but, unfortunately, there is every reason to think that there is a great deterioration. 83,746 persons were arrested for various offences, being an increase of 5,764 persons over the previous year, and of more than 10,000 over the average of 1873–74–75, when there was a comparative lull in theft and disorder. 42,806 drunken and disorderly persons were arrested, an increase of 4,016 over 1877; and assaults, both common and assaults on the police, were in excess of the previous year. 12,880 persons, of whom 9,581 were children under ten years of age, were reported to the police as missing during the year: of these, 6,669 were found and restored by the police; 66 adults committed suicide; 6,004 persons were found by friends or returned home; and 19 children and 122 adults were still unaccounted for when the year closed. In addition to these, 57 dead bodies of persons unknown were photographed, of whom there has not been any identification. 3,570 persons suffering from accidents or other causes were taken to hospital by the police. 124 persons were killed in the streets, and 3,032 maimed or injured. The number of persons killed has been almost the same every year for the last ten years, but the number of persons injured, so far as known to the police, has increased from 1,703 in 1869, to 3,302 in 1879—78·03 per cent. The number of persons apprehended by the police for drunkenness, which had sunk in 1867 to 4·907 per 1,000 of population, has risen to 7·809 per 1,000 of population in 1878.

Another feature of metropolitan organisation is the Metropolitan Fire Brigade, the establishment of which at the end of the year 1878 was distributed at 50 engine, 109 escape, and 4 floating stations. The number of fire-engines at these stations was 140, showing an increase of 2 upon the number in the previous year; 3 were floating steam-engines, 29 land steam-engines, and 138 manual engines. The number of fire-escapes and long scaling-ladders was 125, showing a decrease of 16 from the numbers in the preceding year. The strength of the brigade was 420 of all ranks, including the chief officer and the superintendents, and exceeded by 14 the strength in the previous year. The number of firemen employed on the several watches kept up throughout the metropolis was 91 by day and 168 by night. The cases of injury occurring in the brigade during the year were 83 against 90 in 1877. The quantity of water used for extinguishing fires during 1878 was rather more than 19,250,000 gallons, or about 85,000 tons; about two-fifths of this quantity was taken from the rivers, canals, and docks, and the remainder from the street pipes. The number of fires attended during 1878 was 1,659, showing an increase of 126 upon the number of the preceding year, and being 26 above the average in the ten years 1868–77. Ten per cent. of the fires attended in 1878 were described as serious, corresponding with the proportion in the previous year. Life was seriously endangered at 88 of the fires in 1878, and in 22 cases life was lost. The lives of 151 persons were seriously endangered, of which 126 were saved and 25 lost. The numbers of lives lost by fires in London in the three preceding years were 29, 35, and 29 respectively.

The religious and social condition of the inhabitants of London has undergone many changes since the days when the ancient parish churches afforded ample accommodation for the population, but the movement can scarcely be described as progress in the true sense of the word. The churches have multiplied year by year, until within the metropolitan area of twelve miles round Charing Cross there are, as shown by the new edition of the "Guide to the Churches of London and its Suburbs," edited by the writer of this paper, no fewer than 872 licensed churches in addition to many mission chapels, while the other religious bodies working within the same radius claim a host of buildings in which public worship is held. Still, with all these agencies a very large majority of the working men and women of London are said never to enter

either church or chapel. Canon Gregory, whose experience as vicar of St. Mary-the-Less, Lambeth, one of the poorest parishes in the metropolis, was very considerable, affirmed in his "Sermons on the poorer classes of London," preached before the University of Oxford, and published by Messrs. James Parker and Co., that "the inhabitants of our poor London parishes are in a condition of practical heathenism; religious observances of every kind are neglected; the form and the spirit alike have fled; there is little avowed unbelief, but nearly universal indifference; it is no question of church or dissent, or of religious opinions, but whether there shall be any religion or none. An immense majority of the people—certainly not less than four out of every five—never enter any place of worship from year's to year's end. . . . . They live, like the brutes, a mere animal life; their thoughts are bounded by what has relation to this world; they rarely commit great crimes; they make no profession of unbelief; but the only creed in which they believe and by which they act, is 'Let us eat and drink, for to-morrow we die.'" This it must be admitted is a melancholy recital, but it is supported by statements from all quarters, and Dr. Hume in his evidence before the House of Lords Committee on Church Rates, said that in Southwark 68 per cent., and in Lambeth 60½ per cent., of the population attended no place of worship; while, as an argument for utilising the London theatres for religious services, Lord Shaftesbury and his committee published an estimate which they had made that not more than 2 per cent. of the working men were to be found in any place of worship. Without trenching on controversial grounds, or suggesting how far the amount of crime and depravity which exists may be attributable to the non-church-going tendencies of the people, we have a striking picture of the condition of some parts of the East-end of London drawn by Dr. Stoughton who, speaking after a personal visit to some of these districts, observes: "I have been to Naples, and have seen the Lazzaroni lying upon the quay; I have been to Rome and have seen Italian peasants on the steps of St. Peter's, or by the ascent to the Capitol; I have seen Greek sailor-boys and fishermen from the Adriatic coiled like so many snakes upon the marble floor of St. Mark's at Venice, but I have never seen types of humanity in so degraded and repulsive a form as I have seen them in London." To assign a cause for this degradation, which has grown up side by side with the progress of civilisation, the fortune-making of

our merchant princes, the extension of education, and the spread of religious and philanthropic agencies—no fewer than 1,000 charitable institutions, are tabulated in Low's "Handbook to the Charities of London," for 1879-80—is no easy task; but apart from the view of the religionist, very much of the mischief must be attributed to a waste of energy on the part of social and benevolent reformers, and to the overlapping, and oftentimes the needless multiplication, of societies formed to promote the improvement of the people. Among the efforts made of late years to cope with the difficulties of the case, the Society for the Organisation of Charitable Relief and the Repression of Mendicity, with its numerous branches and district committees, deserves prominent mention, for it has by its investigation of cases of distress and their reference to proper quarters for relief, done very much to supplement the action of the Poor Laws. Still, however, the grave charge made by Mr. Stallard, in his "Pauperism Charity, and the Poor Laws" has only too much truth in it when he says: "In no country in the world is the anarchy, the disorganisation, the confusion, which renders the best institutions powerless and useless, more notorious than in England, and in none are the labours of a public administrator likely to be more useful." Mr. Stallard proceeds to advocate, as a fundamental principle of relief, a registration and classification of the poor on the plan in vogue among the Jews, and this in a limited sense has been adopted by the Charity Organisation Society.

To provide for the spiritual wants of the people many agencies have been established, at the head of which must be placed the Bishop of London's Fund, founded during Archbishop Tait's episcopate in London, and which has since 1873 actually received 603,718*l.* 13*s.* 4*d.*, of which, however, 92,082*l.* 19*s.* 2*d.*, was specially appropriated to particular districts. Out of the remainder, 182,342*l.* 1*s.* 4*d.* has been expended on the erection of churches, 57,136*l.* 7*s.* 10*d.* on schools, 50,214*l.* 11*s.* 9*d.* on mission stations, 17,159*l.* 8*s.* 2*d.* on parsonages, 1,318*l.* towards endowments in special cases, and on living agents 139,888*l.* 2*s.* 11*d.* Corresponding with this movement, separate funds have been formed for the London and suburban parishes in the dioceses of Rochester and St. Albans, so that something like an organised attempt has been made to meet the wants of the case, and has resulted in the recent appointment of a bishop for East London. The utilisation of lay help to supplement the work of the clergy is a modern improvement of no slight importance, and in the diocese of London

alone has brought into the field 2,788 unpaid labourers, 121 of whom hold the bishop's licence to conduct services for the poor. All these centralised and consolidated agencies may be fairly reckoned as not the least important elements in the progress of religion and philanthropy in London, and not one of them can be said to be superfluous in a condition of society which, unlike that of the continental city, or even of the English provincial town, has led to an almost complete separation of classes, until between the east and west of London there is literally "a great gulf fixed," and it is to bridge over the chasm that the efforts of all who wish well to the race must be directed. Such schemes as those with which the names of the Baroness Burdett-Coutts, the late Mr. Peabody, and Sir Sydney Waterlow, Bart. will ever be connected, for providing model lodging-houses and well-built dwellings for the artizan and the labourer, have already done much to improve the homes of the people, and their work is now being followed by that of the public educator, who is, with the force of the law at his back, proclaiming that it is an essential part of the English Constitution that every child shall receive a sound elementary education. The London School Board, setting aside all questions as to the character of the training it gives and its expenditure of the public money, has, in the nine years of its existence, contrived to multiply its red brick edifices to such an extent that they are almost as numerous as the churches and chapels; and although it is still an open question whether they have yet gathered in the waifs and strays of the streets, for whom Lord Shaftesbury and the admirable promoters of the ragged schools did such a noble work, they can boast that they have under instruction 165,900 children, and accommodation for 198,470. In the voluntary schools the average attendance is 184,607, and the accommodation for 274,501.

In provisions for the recreation of the people an immense advance has been made of late years, specially in the acquirement of open spaces, or, as it has proved in some cases, in the stoppage of the inclosure of commons to which the right of the public was only tacitly admitted. Every district of London has one or more of these now almost intra-mural gardens, and the planting and throwing open of disused churchyards, as in the case of St. Paul's Cathedral, will gradually add to the number. The addition to the Royal parks of the tastefully planted gardens at Battersea, Kennington, and Finsbury Park, and the preserva-

tion of Hampstead Heath, Clapham, Wandsworth, Wimbledon, and Tooting Commons, will secure lungs for London, which, as the city grows and extends its frontier, are becoming of increasing importance. In the way of public museums and picture-galleries the establishment of the South Kensington Museum, with its connected branch at Bethnal Green, forms the most important addition made within the last half century to our national collections; while the removal of the Royal Academy's rooms to Burlington House has added largely to the house-room of the National Gallery, and the new rooms are in themselves worthy examples of tasteful decoration. The National Portrait Gallery, teaching history and art at once, is another fruit of that wise application of national funds to popular education which has its widest illustration in the science and art schools, with their branches throughout the country. For its musical and dramatic entertainments the people are still, strange to say, entirely dependent upon commercial undertakings, no scheme of State subsidy having been attempted. The number of theatres has increased considerably of late years, but no attempt has been made to rival the continental cities in the cheap performances which are there rendered possible by the State aid given to the managers. In the Crystal Palace a public company has, however, opened to the people of London what is at once a place of varied entertainment and a health resort, while northwards, on the summit of Muswell Hill, the Alexandra Palace does a similar work. These additions to the entertainments of London, although due to private enterprise, are among the signs of progress, which prove that the apostles of "Sweetness and Light" have not laboured entirely in vain in an age when business threatens to absorb all interest and energy.

In accommodation for its guests London is rapidly improving. The monster hotels—although incomparable in quiet and comfort to the old hostelry of coaching days—have been erected in imitation of our American cousins, near or in connection with the chief terminus stations of our railways, and Charing Cross, Victoria, Euston Square, King's Cross, Paddington, and Cannon Street can boast of buildings palatial in capacity if not in architecture opening on to the platforms, while on the Holborn Viaduct and the eastern end of the Victoria Embankment there are similar erections, each capable of receiving a regiment at a moment's notice. The number of public-houses in the Greater London of the Metropolitan Police District is 7,077, of beer

houses 4,262, of refreshment houses with wine licences 2,115; the total number of licences granted being 13,454. In the prosaic but not less important work of providing the public with luncheon or dinner, the progress of half a century has effected but little improvement, and the rough but good and plentiful coffee-room fare of the past was far preferable to the more pretentious and costly catering of the modern dining room. We have in this matter very much to learn from our neighbours across the water, and the work which, at last, the Coffee Tavern and Refreshment Room Companies are doing for the poorer classes in London, needs to be accomplished for every section of society. There has, it is true, been a noticeable increase in the number of foreign cafés opened in the western thoroughfares of late years, but the refreshment of the people is a matter which still waits for enterprise. Partly growing out of the public needs in this direction has been the extension of the club system at the west end of the town, until Pall Mall and St. James's Street are almost filled with club-houses, in all of which, although the ostensible bond of union may be the political, professional, or social agreement of the members, no insignificant element in the life of the institutions is furnished by the *chef* below or above stairs. The number of clubs of a really high standard is very large, and the latest addition to the list is a club for ladies. For the working man the club has completely taken the place of the Mechanics' Institute, and the central Working Men's Club and Institute Union in London has accomplished much useful work in promoting the formation of such institutions. This system which has been developed within the last twenty-five years, has led, in some cases, to the establishment of educational classes, both technical and general, and a movement of a more extended character for the promotion of technical education is receiving considerable support from the City Companies.

Thus, in all its varied departments of life and labour, the great city is moving on, and if it cannot in architectural beauties be said to be the first city in the world, it is at any rate in the forefront as far as its material and intellectual progress is concerned.

CHARLES MACKESON.

THE LONDON SCHOOL BOARD.

To be well abused is almost a condition of existence for any public body elected by popular suffrage, but it has seldom fallen to the lot of any corporation, civil or ecclesiastical, to be more freely criticised than the School Board for London. When the Board was first elected, nine years ago, it was obviously entering on a new department of public work, for although in the capacity of school managers and committees laymen had occasionally assisted in the direction and maintenance of what are now, for the sake of distinction, termed Voluntary Schools, they had always felt that the parochial incumbents were the persons really responsible, and that the functions of the laity or unbeneficed clergy, in regard to educational matters, was rather to suggest than to control. When, however, the School Board arose at the bidding of Mr. Forster, its true character became apparent; it was to be a body of the Board of Guardians type, but on a far larger scale, able by Act of Parliament to demand from the vestries the funds necessary to carry on its work, but responsible to no one, except in a limited sense to the auditor of the accounts, and in a more limited sense still to the Committee of Privy Council on Education. Established on such a basis, the future of the Board was practically settled before its birth. It is so natural, in every elective body, for the various conceptions formed by the members as to the best means of fulfilling its functions to develop into two or more distinct lines of thought and action—leading, in political life, to the creation of a Ministry and an Opposition—that there was little matter for surprise in the appearance of a strong division of opinion very early in the history of the Board, and although its first chairman, Lord Lawrence, did not, perhaps, take such a decided line as its present head, Sir Charles Reed, there soon arose within the Board a marked disagreement between the advocates of what has since been termed "the Board's policy," on the one side, and the opponents of that policy on the other. At first it seemed probable that the members of the Board would, in the main, differ upon what was termed "the Religious Question," and in this belief strenuous efforts were made by the churchmen, and especially by the clergy of the metropolitan parishes, to return candidates who were not merely pledged to support religious teaching as an element in the School Board's syllabus, in every

one of its schools, but who also undertook to protect, as far as might be possible, the existing voluntary and denominational schools from any needless and, as they held, unfair competition on the part of the School Board. This was the fundamental principle on which the "church candidates," as they were termed, were elected to the first two Boards in 1870 and 1873, but by the time the third election arrived, in 1876 a distinct change had come over the feeling of the church portion of the constituency, and that change has now become intensified into a conviction that a strict adherence to their original platform would be a mistake, and that the future ground of appeal to the ratepayers must be economic rather than religious. In this way the two parties on the Board have gradually ranged themselves in distinct classes: those who adopt the views of Sir Charles Reed and the majority of his colleagues in favour of erecting schools and supplying teaching power to the utmost limits required or permitted under the Acts; and those who, with Mr. Arthur Mills, M.P., Mr. Evan Daniel, and others, who were, for the most part, originally returned as "church candidates," now stand forward as the advocates of reduced expenditure and of a more gradual supply of the educational needs of the great city. Thus it has come to pass that the Board is as distinctly divided as the House of Commons, and, as its division lists prove, the points raised—sometimes crucial, sometimes of minor importance—generally serve to bring out what is, if not a strong antagonism, at least a very wide difference of opinion.

To the Board which has thus grown up and has become, next to the Corporation and the Metropolitan Board of Works, the most important institution in the metropolis, both the sexes, nearly all professions, and almost all sections of society, have contributed members. Even on the first Board the representation of women was secured by the election of Mrs. Garrett Anderson and Miss Emily Davies, while on the Board which is, as we write, entering on the last month of its triennial life, the number of ladies has been doubled, and consists of Mrs. Fenwick Miller, Mrs. Surr, Miss Helen Taylor, and Mrs. Westlake. Among the members of the legislature who have served on the Board during its nine years' existence, in addition to Lord Lawrence, its first chairman, have been Viscount Sandon, Viscount Mahon, the Right Hon. W. H. Smith, Mr. Samuel Morley, Mr. Arthur Mills, Mr. Alderman Cotton, Lord Francis Harvey, Mr. W. McCullagh Torrens, while among past members

of Parliament we may name Sir Charles Reed and Mr. Tom Collins. Some other well-known public men, Mr. Francis Peek, Mr. Richard Forster, Sir John Bennett, Sir E. H. Currie, Mr. S. Kemp-Welch, the Hon. Lyulph Stanley, the Hon. George Brodrick, Sir Francis Lycett, Mr. John Macgregor, the late Sir Thomas Tilson, have been on the roll, and in addition to those whose qualifications are general rather than particular, the list includes, among men of science, Professor Huxley, Professor Gladstone; among literary men, Mr. Hepworth Dixon; among publishers, Mr. Watson, of the firm of Messrs. Nisbet and Co., and Mr. C. E. Mudie, of "Mudie's Library;" among practical educationists, Mr. Heller and Mr. Morgan, both formerly national schoolmasters; Mr. H. G. Heald, formerly Secretary of the Church of England Sunday School Institute; and the late Mr. G. Tabrum, of the Public Record Office, who had for many years devoted his leisure hours to the promotion of youths' institutes and ragged schools in the north of London, and owed his return for the Finsbury division to his popularity acquired in this field of voluntary effect. The Board has had many eminent clergymen of the Church of England and ministers of the Nonconformist bodies in its ranks, including the present Bishop of Rochester, Dr. Thorold (then Vicar of St. Pancras); Canon Gregory, of St. Paul's Cathedral; Canon Barry, Principal of King's College; Canon Cromwell, Principal of St. Mark's College, Chelsea; the Rev. Evan Daniel, Principal of Battersea College; Dr. Irons; the Rev. J. J. Coxhead, Vicar of St. John's, Fitzroy Square; Dr. J. F. Maguire, Rector of St. George's, Southwark; the Rev. Joseph Bardsley, Vicar of Finchley (then of Stepney); Canon Money, of Deptford; Prebendary William Rogers, Rector of Bishopsgate; the Rev. William Rogers (vice-chairman), Vicar of St. Thomas's, Charterhouse; the Rev. J. Llewellyn Davies, Vicar of Christ Church, Marylebone: Canon Miller, Vicar of Greenwich. The Protestant dissenting bodies have sent up some of their foremost men, among whom we may mention Dr. Rigg, President of the Wesleyan Training College, at Westminster; Dr. Joseph Angus, Principal of the Baptist College, Regent's Park; the Rev. J. Allanson Picton; the Rev. Benjamin Waugh, and the Rev. Mark Wilks; and the Roman Catholics have been represented by the Rev. Angelo Lucas, and several lay members of their communion. The working men candidates, as they have been termed, have included Mr. Lucraft and Mr. Potter.

A board which can boast of such a thoroughly representative

character must, it is obvious, have very strong claims to public confidence, and it is probably owing to the floating consciousness of the strength of its *personnel*, which has formed a part of the very atmosphere in which each successive Board has worked that its majority has never hesitated to take steps which must inevitably bring it into collision, not merely with a considerable section of the ratepayers, but with the authorities at the Education Office. The electing body consists of all persons rated for the relief of the poor in the metropolis, and as this embraces a constituency in which the working classes and lower middle classes, who benefit directly from the high class education supplied by the Board at comparatively low fees, preponderate, it is, as far as can be estimated, very improbable that any great change will take place in the balance of power on the Board, which has hitherto been largely in the hands of members who favour the Board's policy. Wherever a distinct issue has been raised, either on religious or economic grounds, the result of the voting has thus been a foregone conclusion, although on such matters as the costly furnishing of the School Ship, which in itself formed an expensive addition to the Board's machinery, and the maintenance of the Truant School on the silent system, which in its working appears to have involved harshness, if not actual cruelty on the part of the officials, the divisions have shown a tendency to forget party.

The change in the *personnel* of the Board has already been very considerable; the elections of 1876 resulting in the return of only twenty-eight of the members of the first Board, and twenty-two new members, while three of the old members, were as a matter of fact newly elected, as they were not returned in 1873. The tendency of the elections has scarcely been in an upward direction as far as the eminence of the candidates returned has been concerned; the absence from the list of such men as Lord Lawrence, Lord Sandon, Bishop Thorold, Mr. W. H. Smith, M.P., Mr. Torrens, M.P., Canon Barry, Canon Miller, Mr. John Macgregor, Professor Huxley, the Rev. W. Rogers, Dr. Rigg, and Mr. Llewellyn Davies, having scarcely been compensated for. That such a contingency was inevitable was foreseen from the first by those who realised what the work demanded from the members of the Educational Parliament would be; for, apart from the attendance at the full meeting of the Board, no member can be said to discharge his duties efficiently who does not serve on the central committees, and perform those

divisional duties, on the discharge of which the efficiency of the whole system so largely depends. To expect such a devotion of time from men actually engaged in other pursuits would be vain, and there is much reason to fear that the ensuing election will show a still further falling off in the standard of the Board, and a still larger infusion of men of whom, without any lack of charity, it may be said, that they seek election from personal motives, their capacity for the work in hand being in an inverse proportion to their own estimate of their abilities as set forth in the appeals which they make to the constituencies. Any such decadence, if it went beyond a certain limit, would be very serious, not merely as regards its inevitable influence upon the quality of the work done by the Board, and its hold upon the public confidence, but in its necessary tendency to throw the power of control into the hands of a section of the Board, who, by long tenure of office, have naturally and legitimately acquired considerable weight in its councils; and, therefore, although the task of serving on such a body may involve much self-denial and the expenditure of many laborious hours, it cannot be too strongly insisted upon that it is a work which is worthy of the most able men and women, who by residence in London and its suburbs are qualified for election.

Looking next at the executive of the Board, we find that out of the fifty members only one, the chairman, receives a salary, the amount voted to Lord Lawrence and his successor Sir Charles Reed being 1,000*l.* a year. In addition to his own salary, the chairman has 300*l.* a year to bestow upon a private secretary. The chief permanent official of the Board is its clerk, Mr. George Hector Croad, B.A., who was, at the time of his election in 1870 selected from a large number of candidates, secretary to the Bishop of London's Fund. The clerk's salary, when the election took place, nine years ago, was 600*l.* a year, but its present amount is 1,200*l.*, the last augmentation voted by the Board being 200*l.* in 1878. The clerical staff includes clerks in charge of the statistics, finance, ministry, school management, industrial schools, and works department at salaries varying from 265*l.* to 445*l.* a year. The architect, Mr. Noble, receives 1,000*l.* a year, and the four inspectors of the Board Schools receive 300*l.* to 450*l.* each, while there are many other salaried officials not only at the central office on the Thames Embankment, but in the various divisions where a considerable clerical and visiting staff is constantly employed. The Board employ a staff of ten superintendents—

one for each division—at an average salary of 240*l.* per annum, and under them 203 visitors, at an average salary for the males of 90*l.*, and for the females of 60*l.* a year. This staff has to deal with the entire population of school age in London, numbering fully half a million of children. The total sum paid in salaries to "officials" in the year ended 29th September, 1878, was 38,131*l.* 2*s.* 6*d.* The teaching staff employed by the Board consists of 528 masters, 858 mistresses, and 1,792 pupil-teachers and candidates. Of this number it has had, according to Sir Charles Reed's latest statement on the subject, the selection and appointment of 993 adult teachers, every one of whom, after nomination by the local managers, has been examined and approved by a committee of members of the Board. The salaries of head masters, including payments on account of the Government grant, average 203*l.*, and of head mistresses 130*l.* 10*s.* The average stipend of the assistant masters, according to the chairman, is 105*l.*, and of the assistant mistresses 78*l.* Four teachers under the Board receive more than 300*l.* a year, and eleven over 250*l.* The scale of salaries paid by the Board is, of course, very far in excess of that obtained in the majority of the elementary schools of the kingdom before the passing of the Act, and the sudden increase in the market value of teaching power was one of the incidental results of the introduction of the School Board system, which inflicted the greatest loss upon the voluntary schools, for while these schools naturally found it more difficult to obtain subscriptions from persons who were now compelled to pay the School Board rate, in addition to their voluntary quota to their denominational schools, the cost of the teaching staff was proportionally increased. The advocates of the School Board policy, as represented by Sir Charles Reed, maintain that the part the Board has played in thus raising the money value of the schoolmaster and schoolmistress was legitimate and necessary, and only an act of justice to the persons employed; and Sir Charles in his speech at the opening of the last session of the Board on the 27th of September, 1879, said: "The scale of remuneration is undoubtedly higher than it used to be before the passing of the 'Education Act of 1870;' but it is not in advance of the market value of the services demanded, nor is it above the rate of salaries given in the best voluntary schools. . . . . When it is remembered that many of these teachers have the responsible care of departments of 300 or 400 children, and in one or two instances of as many as 600 or 700, and that they have to train pupil-teachers,

as well as to exercise a good moral influence over scholars who possess no home advantages, and are subject to injurious influences, it can hardly be shown that duties so important and onerous are overpaid. It may be safely said that the work now excellently done would not be accomplished upon a reduced scale of salaries." We learn from the accounts published in the last Blue Book of the Educational Department, that the amount paid by the London School Board in salaries to teachers in the year ended Michaelmas, 1878, was 305,912*l.* 17*s.* 8*d.*

The work of the Board, as presented for its performance at the time of its establishment in 1870, consisted in the provision of education for 101,000 children of school age, for whom at that time there was no room in the existing voluntary schools. To meet the growth of population up to 1875, and the non-erection of projected voluntary schools, the Education Department gave subsequent sanction for the erection of schools with 61,000 additional places. Towards this total the first Board built or secured sites for 86 schools, with accommodation for 79,625 children. The present accommodation afforded by the Board is as follows:—New schools opened, 134, accommodating 115,942 children; schools building or contracted for (12 of which will be opened by November), 40, accommodating 31,199; schools on sites purchased or selected, 47, accommodating 35,070; giving a total of 221 schools, with 182,211 places. These figures include a certain amount of accommodation which has been provided in the case of schools transferred to the Board, where the old buildings were found to be unsuitable. The provision made in the several divisions is as follows:—In the City, one school for 430 children will be provided; in Chelsea have been provided 17 schools for 12,592 children; Finsbury, 28 schools for 22,000 children; Greenwich, 24 schools for 16,641 children; Hackney, 30 schools for 28,529 children; Lambeth, 45 schools for 36,612 children; Marylebone, 15 schools for 11,575 children; Southwark, 25 schools for 22,142 children; Tower Hamlets, 33 schools for 30,466 children; Westminster, 3 schools for 1,953 children. Questions have been raised from time to time whether the Board has not provided accommodation in excess of the actual requrements of the case, but Sir Charles Reed contends that it has no option but to give the accommodation demanded by the Education Department, and in this view he claims the concurrence of Lord Sandon, the former Vice-President of the Committee of Council on Education. As regards the actual attendance of children, the

result of the work accomplished by the Board in the eight or nine years of its existence, leaving out of consideration the matter of cost, must be pronounced to be satisfactory, for it has not only provided for a large number of children in its own schools, but it has indirectly led to an increase in the number of voluntary schools, and to the average attendance at those schools. Thus the number of children on the roll of all efficient voluntary schools in the metropolis in the year 1871 was 222,518. At Christmas, 1878, the voluntary schools had on their rolls 263,704 children, and the Board 123,398, showing on the whole an increase of 164,505. The average attendance in the whole of these schools had grown in the same period from 174,301 to 288,497 —that is, by 114,196. In the Board schools with accommodation for 133,685 and 136,913 on the roll, there is a daily average attendance of 108,636, or 79·3 per cent. The decrease in absentees has been at once marked and regular. In 1873 the percentage was 33·5, in 1874 it was 28·3, in 1878 it had sunk to 25·4, and in the first half of 1879 it was as low as 21·2. The Board has freely used its powers of compelling attendance; and, as an illustration of the result of this part of its policy, it is stated that in the half-year ending Christmas, 1878, notices were issued in 34,781 cases, and, as a consequence, 27,706 children were either sent to school or made to attend regularly. After every milder method had been tried, summonses were taken out in 4,675 cases. Of these, 3,976 resulted in the magistrates supporting the action of the Board, and imposing fines varying from ½*d.* to 3*s.*, the penalty being in most instances 1*s.* In 171 cases the parents were cautioned; and in 21 cases alone, or 1 in 222, the summonses were dismissed.

The hard pressure of the compulsory powers as enforced by the Board has been forcibly brought before the public in many cases where the officers have taken out summonses against parents who pleaded that their children had received sufficient education for practical purposes, and were bringing grist to the family mill by taking remunerative employment, or by "minding the children at home" while the mothers went out to work. In many of these cases the operation of the Acts has involved considerable hardship, and the magistrates have not unfrequently expressed very strong opinions as to the enforcement of such laws; but the plea of the Board's officers is always the same—that they are simply agents in carrying out the will of the Imperial Legislature as registered in the Acts of Parliament

under which they work, and that the remedy, if one is needed, lies in an appeal to Parliament, and not to the Board.

Comparing the results of the work of the School Board with that of the voluntary schools, we find that in the half year ending Christmas, 1878, the accommodation and average attendance in the two classes of schools was as follows :—

Board Schools.		Voluntary Schools.	
Accommodation.	Average attendance.	Accommodation.	Average attendance.
198,470	165,900	274,501	184,607

As a further evidence of the general results of the working of the Education Acts since 1870, we have the following figures :— Average attendance in 1870, 174,301 ; by latest returns, 350,507. The question of the fees charged by the London School Board has evoked much discussion, and the expression of not a little strong feeling. It has at present no free school. All its children pay fees, ranging from 1*d.* to 6*d.*, the average being a little over 2*d.* The total income on account of fees for the year ending Lady-day, 1879, was 35,367*l.* 0*s.* 11*d.*, being an average of 7*s.* 8*d.* per child in daily attendance. The number of children sent away and kept away in consequence of not paying the fees was only 183 for the first half of the year 1879. Up to the present time fees have been paid for short periods for 2,345 children attending voluntary efficient schools, and remission has been granted to children in the Board's own schools in 3,454 cases, renewals being reckoned in this figure as separate cases. The Divisional Committees are empowered to grant immediate provisional payment or remission in cases of poverty, but every such case is submitted to the Board for consideration and approval. The case of the advocates of voluntary schools as against the School Board, is that by providing a higher class education at a needlessly low rate of fees, the Board has competed unfairly with the voluntary schools, and such veteran supporters of the voluntary system as the Rev. J. E. Kempe, Rector of St. James's, Piccadilly, openly charge the Board with adopting Communistic principles, by taxing persons who can ill afford to pay the rates to supply a high class education at a nominal cost for the children of artizans and others, who are not only able to pay a nearer approximation to its actual cost, but who until the establishment of Board

Schools willingly paid such an approximate fee for their children in the voluntary schools. Mr. J. G. Fitch, the Inspector for the eastern half of the Lambeth Division, who speaks in his annual report in terms of the highest eulogy of the general work of the School Board, bears witness to this tendency on the part of the artizans and lower middle classes thus to use the Board Schools, and says:—"Some of the Board Schools are attended by a considerable number of scholars of a higher social rank, who formerly would not have been found in elementary schools at all; but would have been paying a guinea a quarter in some little private establishment, dignified by the name of 'academy,' or 'seminary.' The parents of these children, clerks and shopkeepers for the most part, would not have been unwilling to pay higher fees; but they have discovered the inefficiency of the private schools, and now, that the Board Schools with their imposing buildings, their municipal character, and their skilled teachers, are accessible to all classes, it is quite intelligible that such parents should not feel precluded from using them by the fact that the fee is only 2*d.* or 3*d.* a week. Herein, the lower middle classes appear to me to evince a true instinct; for the Board School is undoubtedly giving the best education within their reach. But the arrangement is not in any sense satisfactory. The true differentials in the character and aims of schools are determined mainly by the age to which the period of instruction in them can be prolonged. Now the elementary school contemplates a course of education which will, as a rule, be completed at the age of 13; but a secondary or middle school, which hopes to retain its scholars till 15, aims from the first at teaching one other language and the rudiments of science, and at a wider and more generous cultivation of mind than is possible in an elementary school. This is the kind of provision which the lower middle classes want, and nothing short of it ought to satisfy them. They want good day-schools in appropriate buildings, large enough to admit of proper classification and economy of teaching power, governed by responsible public bodies, taught by skilled teachers, and adapted, *mutatis mutandis*, in the same way to the longer course of instruction as the elementary schools already are to the shorter. Such schools should, in the first place, be open to all who would pay a moderate fee—4*l.* or 6*l.* a year—and in the second, should, by means of free places or bursaries, provide higher instruction for those children of special promise in the elementary schools, who might be willing and able to

continue their course of instruction to a later age. There are resources enough in the education charities of London to surround the metropolis with a zone of such schools, and it is well known to have been the desire of the late Endowed Schools Commissioners to effect this object." This is one of the "burning questions" which will inevitably have to be settled ere long, and it is not impossible that the system of grading schools, so as to afford a varying standard of education with corresponding fees, which Lord George Hamilton has suggested, may ultimately meet some of the difficulties which have arisen.

As to the subjects taught in the schools, Sir Charles Reed states that "the three R's" are taught in all schools under the Board to the boys and girls as well as to a majority of the infants. Religious instructions is given daily in every school, the children sing hymns, join in simple prayers, read the Bible, and receive an explanation of it by the teachers, limited to the obvious moral lessons and avoiding all doctrinal points. Only 126 children in all the schools, or less than one in 1,000, have been withdrawn from the religious instruction, and these chiefly for domestic reasons rather than from conscientious objections—a fact which, taken in conjunction with the infinitesimal number of withdrawals from the more dogmatic teaching in voluntary schools, shows how little reality there was in the alleged "grievance" which led to the adoption of what has since been known as the "conscience clause." Going higher in the syllabus, and leaving the elementary subjects of reading, writing, and arithemetic, which many persons hold form the limit of what ought to be taught at the public expense, we find that grammar and geography are taught to 60 per cent. of the boys and girls, and history to 21 per cent. of the former, and 14 per cent. of the latter. Instruction in plain needlework is given to 96 per cent. of the girls, and in sewing to 45 per cent. of the infants. Drawing is taught to 90 per cent. of the boys, and 79 per cent. of the girls. Music is taught to 96 per cent. of both boys and girls, and singing is universal among the infants. The teachers are at liberty to use either the established notation or the Tonic Sol Fa system; as a rule, the latter is said to be preferred. Instruction in drill is given to 81 per cent. of the boys, and 28 per cent. of the girls, while nearly all the infants go daily through some physical exercises. The average weekly attendance of teachers at the lessons of the drill sergeant at three centres is 106, besides whom 272 teachers have already qualified to act as instructors.

In addition to these subjects which are included in the ordinary standard work, there are certain specific subjects recognised by Government, and for which grants may be earned. The more useful of these are taught to such pupils as show a capacity for them, but not to the bulk of the children. Thus, animal physiology is taught to 6,079 children. Practical instruction in cookery is given to 800 selected girls at four centres. Beyond this, object and Kinder-garten lessons, which all head infant teachers are expected to understand, are given to over 83,000 children. Mensuration and book-keeping are taught as extra subjects to 1,724 boys and 76 girls. The instruction in Latin is confined to 192 boys, most of whom are in training to become teachers. Swimming has been taught apart from the Board, but with its entire sanction, to upwards of 6,000 boys from various schools without involving any expense to the ratepayers. Provision is made for the deaf and dumb at four centres. At Midsummer last 82 children of this class were on the books. The instructor engaged for the blind has at present 30 pupils distributed over 19 schools. An obvious criticism upon the teaching of "extra subjects," apart from the purely financial consideration, whether it is just to tax ratepayers to supply what have been termed educational luxuries, is whether according to common experiences of school life the general tendency of the system must not be to lead the teachers to concentrate their attention upon the clever boys and girls in their schools, to the inquiry of the general standard of the education given in the simpler subjects. This is a point on which already much difference of opinion has been expressed, and it will probably increase rather than diminish.

As regards the cost to the public of the voluntary and the Board schools, and the relative earnings from the Government Grants in the two classes of schools, interesting statistics are furnished in the Report of the Education Department, and although they refer to the averages drawn from the whole country, they apply to the metropolis in common with the other towns and villages where School Boards exist. The average cost of maintenance of each child, or, in other words, the whole of the charges for the education, for the year ended 31st August, 1878, was :—

In Board schools	....	....	£2 1 9¾
In voluntary schools	....	....	1 14 11

giving a credit in favour of the voluntary school to the extent

of the by no means contemptible amount of 6*s.* 10¾*d.* per child. The grant earned from the Government for each child in average attendance, in the two classes of schools which furnish the only available test of the relative merits of the instruction given under the two systems, was during the same period :—

In Board schools	....	....	£0 15 1
In voluntary schools	....	....	0 15 2

so that, as a net result, while the child in the voluntary school cost 6*s.* 10¾*d.* less than the child in the Board school, it earned 1*d.* more : a proof in any case that there is no inferiority in the article supplied at the lower cost. But the comparison which appeals more directly and forcibly to the ratepayer is that which exhibits the sources of revenue under the two systems, for it shows that, while in the Board school the cost of each child, amounting to 2*l.* 1*s.* 9¾*d.* a year, was met by a levy on the ratepayers to the extent of 1*l.* 0*s.* 4¾*d.* for each child, a large proportion of the cost of each child in the voluntary schools came from voluntary contributions. The moral deducible from this fact is that, if from the competition of the Board school system or other causes the voluntary school should ultimately disappear, the burden thrown upon the ratepayers must necessarily be very heavy. Already the rate in London is nearly 6*d.* in the pound, and every efficient voluntary school which dies out through lack of support, or is voluntarily transferred to the School Boards, involves a material increase in the rates. That a *modus vivendi* may be evolved from the present antagonism, by which both the voluntary and the Board schools may be enabled to continue their operations, will be the desire of all the well-wishers of the work which all are equally anxious to promote ; but it would be idle to ignore the fact that the solution of the problem involves many points of very considerable difficulty, and will require careful thought and a more general disposition to look at the subject from all points of view than has been exhibited of late years. That the London School Board, if on entering upon its new term of office it includes many of its present members, as in all probability will be the case, will find it a difficult and unpleasant task to retrace its steps in the direction of simplicity and economy is very true, but some such reforms are likely to be forced upon it by public opinion, especially when the opinion of an expert of such universally admitted authority as Mr. Matthew Arnold can be quoted in favour of a movement in

both these directions. In his report for 1878, as one of Her Majesty's Inspectors, upon the elementary schools in Westminster, Mr. Arnold writes :—"It is only during the last year that the operations of the London School Board have come much under my immediate notice in Westminster. I am quite sure that the Board needs the advice—simplify. I am quite sure that they ought to conceive, in a simpler way, the problem before them, and the means of working it out. I am quite sure that their conception of what is requisite in the way of accommodation, studies, salaries, and administration is pitched too high. Both in London and elsewhere, School Boards are apt to conceive what is requisite in these respects rather as benevolent, intelligent, and scientific educationists in Utopia than as practical school managers. A member of the Birmingham School Board proposes seriously to send up every sum worked for examination by all the four millions and a half of children for whom school places have, it is said, to be found in this country, to the Education Department in Whitehall, to be looked over. Such a proposal shows just the defect to which our great School Boards—valuable as they are, and grateful as we ought to be to them for their gratuitous services—are, it seems to me, prone ; it shows a defective sense of scale and proportion. Elsewhere this sense of scale and proportion is practically taught, by the conjunction of secondary and superior instruction, and public services, with elementary instruction. The three have to be, in some measure, co-ordered, and this teaches scale and proportion. It is evident that secondary and superior instruction must come to be on an insupportable scale of expense, if the expense of even elementary instruction is to be 6*l.* 5*s.* 11*d.* a year for every scholar. In England secondary and superior instruction are not public services. They are left to be what they can, and to cost whatever they may happen to cost. But really this is a reason not for throwing a heavier burden upon the middle-class ratepayers, but for throwing a lighter one. If rates and State grants do nothing for his children's education, and are, at the same time, employed with prodigality for the education of the children of the working class, he is the more a sufferer." Such words as these from one whose opinion cannot fail to carry weight offer ample food for reflection, not only for the members of the Board, but for the ratepayers, who have a very responsible duty to perform at the ensuing election.

PART II.

ARCHITECTURE AND PUBLIC IMPROVEMENTS, SCIENCE, PAINTING, MUSIC, PHILANTHROPY, LEGISLATION, STATISTICS, AND CHRONICLE OF 1878-79.

ARCHITECTURE.

In recalling the leading events of the past year in the world of architecture and building, one is irresistibly reminded of the question so often discussed by critics—artistic, architectural, and literary—as to the real definition of architecture, and the reasonableness of the somewhat arbitrary boundary by which it is separated from engineering. For if we consider what is the most remarkable building event of the year, unquestionably we must conclude that 1879 will be memorable in the history of such events mainly, as far as this country is concerned, for the commencement of the new Eddystone Lighthouse. The fame of the older structure was so justly great, its name has become so proverbial as one of the most brilliant achievements of English engineering genius, under exceptional difficulties, and the new work promises to be so worthy a successor to the old, that it seems impossible, in speaking nominally of architecture, to put any other building enterprise of the year before this. It is something to be remembered with pride by the countrymen of Smeaton that the edifice which he erected has had to be superseded mainly through the defects of the natural rock on which it was founded, rather than through any weakness in the structure itself; and that the engineering science of the present day, with all its acquired experience, has hardly pretended an ability to make any improvement on the lines and general design of Smeaton's lighthouse, though some practical improvements in the process of construction are being realised. The new lighthouse is much larger than the old one; Smeaton's building had a base of 32 feet diameter, and carried its light at a height of 72 feet; the new erection, designed by Mr. J. W. Douglas, has a base of 44 feet, and carries its light at the height of 130 feet. Smeaton's lighthouse was built internally of Portland stone, faced externally with granite blocks, shaped from the exceedingly hard rounded granite fragments found on the face of the country in Dartmoor and other similar districts, and called hence "moorstone." The new work is built entirely of granite, with special

methods to ensure permanence; the stones in the basement especially being let into each other with a dovetailed projection fitting into a channel in the adjoining stone, both on the side and end, and additionally secured by bolts of a metal specially compounded for the purpose, as having the greatest power to resist oxidation and other chemical deterioration; and the whole, when put together in Portland cement, will probably furnish, as its engineer says, a structure "stronger than the rock itself." The Eddystone Lighthouse has an additional interest in connection with English building of every kind, as it was owing to the experiments made by Smeaton in order to discover the best cementing agent for his work, that we were first put on the right track in regard to the qualities and power of what is now known as Portland cement: a material which, though long confined to use in engineering works, is now likely to become an important ingredient in much of architectural work, as the basis of concrete, a material which is becoming more and more talked about, and already put into use in various forms, as a substitute for brick walling, in which capacity the economical advantages which it offers may even influence architectural decoration by leaving a margin for the introduction of ornament where it would otherwise have been impossible to indulge in anything but plain walls.

If we have to congratulate ourselves on the commencement of one great engineering work, we have also to rejoice over the preservation of another, which combines some of the highest qualities both of architecture and engineering. The additions which had been proposed, and were nearly being carried out, to increase the traffic accommodation on London Bridge, would have involved not only possible injury to the stability of the structure, but certain and absolute disfigurement to what may truly be called one of the noblest architectural works which London possesses; for London Bridge has exactly the qualities which constitute the highest architectural character and expression—solidity and mass, perfect execution, and a complete suitability of the design to its practical purpose. The proposal to destroy the grand monumental character of this structure by tacking balconies on to it for pedestrians is a painful example of the indifference which is felt in modern England towards architectural grandeur when it is supposed to stand in the way of any fancied "practical" advantage; and it is matter for sincere congratulation, in the eyes of all those to whom architecture in its noblest and severest forms is of any consequence at all, that the House of

Lords, by throwing out the bill of the City Corporation for widening the bridge in the manner proposed, have preserved us from the discredit of having deliberately spoiled and disfigured one of our grandest structures, and that the greatest ornament of the Thames is still left intact.

If there be any question raised as to the suitability of including the two engineering works just named under the head of "Architecture," no better justification for it could be found than in the writings and the career of the greatest mind among contemporary architects, whom we have had the misfortune to lose during the past year. Though Eugène Emmanuel Viollet-le-Duc was not an Englishmen, his loss is ours as well as that of his countrymen; for, in fact, he belonged not to France but to all Europe. And the whole tendency of Viollet-le-Duc's teaching and practice was in opposition to the Academic theory of architecture, which regards the art as merely the application to buildings of certain derived ornamental or decorative features. With Viollet-le-Duc every kind of building, whether it was a mansion, a bridge, or a fortification, was equally "architecture," for, with him, architecture simply meant the best, most scientific, and most expressive form of building. His whole professional life was, in regard to this, more or less of a fight against the Academic party in France, and the system of Government instruction as carried on at the Ecole des Beaux Arts. Of his work in other ways much is already becoming well known in England. His great "Dictionnaire Raisonnée de l'Architecture," itself nearly sufficient, as one might suppose, to be the work of a lifetime, is now a necessary element in every good architectural library, and is probably the finest work in illustration of architecture that has ever been published, when we regard the mass of detailed information it contains, the insight into the relations of architecture to the history and social economy of nations, and the admirable and hitherto (in such a work) unequalled character of the illustrations. Yet this great work, though constituting his chief monument, is but a part even of his literary labours. Among his many other critical and illustrative books in relation to his favourite study may be mentioned his "Dictionnaire du Mobilier;" his admirable "Lectures on Architecture," two volumes of which have already been translated into English, and which contain some of the most profoundly suggestive criticisms in regard to the very foundation of art and of artistic perception; his "History of a Fortress," in which the most minute informa-

tion in regard to the successive stages of military architecture is conveyed in a manner which has all the interest of a romance; his "Essai sur l'Architecture Militaire;" and his "History of a House," in which the philosophy of house architecture, practical and æsthetic, is brought into so simple and readable a form as to be clear to every comprehension, and which, it may be added, was written merely as an evening's amusement while making a survey for the French Government in an out-of-the-way district. His practical work included the restoration of some of the most interesting and historic buildings of France, among which may be mentioned Notre Dame at Paris, and the Abbey Church of St. Denis: and, subsequently, he restored the fortifications of Carcassone, the Cathedrals of Laon and Amiens, Notre Dame de Chalons-sur-Marne, and the Château of Pierrefonds; the last-named building being one of the finest and most interesting of the mediæval châteaux of France, in which Viollet-le-Duc took especial interest, and arrived at nothing less than the production for modern spectators of a complete reconstitution of the feudal dwelling in the days of its greatest splendour—a task which his unequalled knowledge of French mediæval architecture and furniture enabled him to accomplish as probably no one else of his time could. Subsequently he was intrusted with the supervision of the works for the additional fortification of Paris under the Republic, thus vindicating in his own person his theory as to the unity of all classes of building and construction under the general head of architecture. His knowledge seemed to be almost encyclopædic; and one of the men who worked under him was heard to say of him, "He knows everything from geology to cookery, and it all comes like music from his lips." The last scheme in which he had interested himself was the effort to bring about the foundation of an opera-house for the people, in order to bring the lyric drama within the reach of all. With all this varied ability and power, he was a man of the most simple and unassuming character, working hard early and late in his favourite craft; ready to impart his knowledge to all who sought it, and beloved and respected by all who had dealings with him; such a man as the architectural world will not, it is to be feared, see the like of again for some time to come.

The great historic Abbey Church of St. Albans has continued during this year to be the subject of hot discussion in regard to the

treatment of the building by those under whose care it is for the time officially placed. Last year the walls of the structure were lifted into the perpendicular from which they had dangerously declined, a proceeding about the advantage of which there could be no difference of opinion; but dire was the outcry when it became known that the Restoration Committee intended to place a new roof on the nave; and sensible people could derive little satisfaction either way from a contest in which both sides were more or less wrong, and seemed influenced less by interest in a great building than by a wish to annoy their opponents. The Society for the Protection of Ancient Buildings, whose members seem to be actuated rather by sentiment than by any knowledge of facts, declared that the existing roof was perfectly good, which they had no means of knowing even if it had been the case; the Restoration Committee decided, quite rightly and on sufficient advice, that the roof was in such a condition that a new one was indispensable; but they then unfortunately adopted a theory that it was their duty to replace the low-pitched roof by a high-pitched one, such as would very likely have been first placed on the building when the walls were erected, but of the former existence of which there was no trace and no proof. They have, it is to be regretted, carried their point, and have thus altered the proportion and the outline of a building which has been for centuries a part of the landscape in which it stands, and breaking through all the sentiment and the associations of the place for an object even the architectural value of which is exceedingly doubtful. The moral connected with the matter is that if the mass of the public interested themselves more in such subjects, and were not so deplorably ignorant and indifferent on the subject of architecture, both ancient and modern, there would be a healthy public opinion which might prevent the indulgence of sentimalities and mistakes such as these; but the public and the press, as a rule, neither knowing nor caring anything about such things, the treatment of buildings which form a part of the history of the nation is thus left to the pleasure of a few irresponsible persons, who may do an entirely irreparable injury to it, the extent of which will only be recognised when it is too late.

It is important that every opportunity therefore should be taken of endeavouring to promote increased interest in such subjects in the minds of those who are not specially or professedly concerned in architecture and archæology, and who may therefore exercise in such matters what may be called the judgment

of common sense, uninfluenced by professional feeling or archæological sentiment, which latter quality is not infrequently displayed in a somewhat unreasoning manner, and without sufficient consideration for the practical wants of the present day. There is likely to be increased necessity for the exercise of public criticism in regard to the ancient buildings of London, as the necessity for improvements in thoroughfare accommodation, and the changing demands of commerce, lead inevitably to the removal of such old buildings as are manifestly useless to the modern community, and occupy ground the commercial value of which is enormous. This subject comes, in fact, into the history of the architectural movement of the year, as the question of the treatment of some of the City churches has been much agitated, and is likely to become an increasing source of contention between archæologists and men of business. The *Builder*, in view of this discussion, republished in its issue for May 3 a former engraving representing "the threatened churches of London," which included some of the best and most characteristic of the works of Wren. Some of these it will probably be impossible ultimately to save, except at the cost of absolute neglect of important present interests; but while there is no doubt that those who are most strongly interested in these buildings are apt entirely to overlook the claims of existing society, it must on the other hand be plainly said that the tone and spirit in which such works are regarded by the commercial or city mind exhibits an indifference to the picturesque and historic interest of these old buildings, and a preference for £ s. d. over every other consideration which is deplorable. A more general and enlightened public interest in the question would be the best check on archæological sentimentalism on the one hand, and commercial indifference on the other hand; and each of our readers may do something to promote such a balance of public criticism when the time comes for exercising it.

Reference to the works of Wren naturally brings to mind the fact that some special interest has been excited during the present year in connection with his greatest work—the Metropolitan Cathedral—which is, fortunately, under the charge of an architectural custodian (Mr. Penrose, "the surveyor to the fabric"), who combines, in a rare degree, archæological enthusiasm with practical knowledge and judgment. Investigations carried on under his direction have led to the discovery of a portion of the foundations of the cloister and chapter-house of

the mediæval Cathedral which perished in the Great Fire, and these remains have seemed to point, among other things, to the interesting fact that the choir of the old Cathedral was deflected from the line of axis of the nave, inclining towards the north-east, in the manner which is found in several mediæval cathedrals and churches, and which is believed to have had symbolical reference to the inclination of the head of the Saviour in mediæval representations of the Crucifixion. What is, however of much more direct and certain historical interest to us is the discovery, by Mr. Penrose, of the foundations of St. Paul's Cross, an erection which was connected with so much of the political and social history of England, in one of its most stirring and eventful periods, and the site of which must be matter of such interesting associations to every Englishman. Both the pavement of the old Cathedral and the base of the Cross were considerably below the present ground level of St. Paul's Churchyard (illustrating the constant tendency to a raising of the ground level in large cities, owing to accumulation of *débris*), and though the actual remains of the structure could not be permanently exposed to view without fear of their disintegration by weather, as well as inconvenient interference with the ground level, the site of the cross is now marked on the land at the north-east angle of the Cathedral, which has also been laid out and planted as a small garden, open to the public, thus greatly improving the appearance and accessories of the building from this point of view, and giving a new historic interest to the locality. The crypt of the Cathedral has also been cleared from the lumber and dust of generations, and thrown open to the public; the eastern portion, on the site of the ancient chapel of St. Faith, arranged as a small church for daily early morning service, and some of the old monuments rescued from the original Cathedral have been arranged here. These and other interesting details were communicated by Mr. Penrose, early in the year, to a meeting of the Institute of Architects, in a paper which will be found in their "Transactions;" not, however, including the particulars about the remains of St. Paul's Cross, which were not discovered till a few months later.

One of the most interesting new architectural schemes of the year has been that which has resulted from the determination of the trustees of the City of London School to yield at last to the pressure of circumstances, and remove their important establishment from the narrow and cramped site on which it has so long

stood, to a new building on a roomy and airy situation on the Thames Embankment. This resolution led to an architectural competition, in which, as in so many similar cases, a great amount of admirable work was thrown away, and an exceptional amount of practical and artistic talent exhibited. The committee appointed to consider the designs went into the subject with unusual minuteness, and have selected a design which we must conclude affords them the accommodation they look for in what they regard as the best and most convenient manner. Unfortunately, however, they cannot be congratulated on having chosen a design which architecturally will be likely to be considered worthy of the site; and though this is a secondary consideration in comparison with suitability of plan, it is certainly matter for much regret that there seems little probability of the Thames Embankment, the river frontage of which affords such a splendid site for the noblest architecture, being occupied by buildings really worthy of the situation. The architectural history of this great thoroughfare, so far, is not encouraging. It has been occupied at one end by a hotel of the most commonplace description architecturally, at the other end by a half-finished building, the proposed, but now abandoned, opera house, which, had it ever been completed, would have been no ornament to the site, and totally unworthy to stand under the shadow of Barry's Clock Tower; and now we have the promise of another large building, which will permanently occupy a considerable portion of the frontage with architecture as good as anything else that is there, but apparently not much better. It is to be hoped that future efforts at the architectural embellishment of the Embankment will lead to more fortunate results than this promises. The building is not, indeed, commenced yet, but it is understood that the selection of the design is finally determined on, and as the designs submitted were open for public inspection, it was possible to judge both of what was done and of what might have been done.

Since our last year's number was published, the largest building now proceeding in this country has been partially completed and thrown open for occupation. The portion of the Law Courts now in use was completed externally last year, and we then commented fully upon its architectural aspect, so that it is unnecessary to repeat any remarks upon its architecture. It is sufficient to say that, so far as it is now in use, it appears, on the testimony of those who have to use it, to be more practically satisfactory

than was anticipated by many who judged from the forbidding and monastic appearance of the exterior of the structure. So far this is matter for congratulation, though it can hardly be hoped that the building will ever be accepted, when complete, as a realisation of the best possible ideal of Law Courts.

Another great building, the exterior of which has been for some time complete, and familiar to visitors in the neighbourhood of South Kensington, is now also nearly complete internally, though not yet open to the public. Externally the Natural History Museum is hardly a building to command very much admiration as a whole; it is somewhat heavy and has the additional disadvantage of standing too low, and, in fact, almost in a hollow, below the level of the adjoining roadways. There are, however, very admirable points of detail in the exterior, and the central entrance doorway, with its deep recessed arch and rich sculptural decoration in terra cotta, is a very fine feature. But when the public are admitted into the completed building, they will find themselves brought face to face with a very novel and successful application of special materials, and of a type of architectural design which has not in any other modern building been treated on anything like this scale. The whole building is practically, to begin with, a remarkable and valuable example of the application of terra cotta as an architectural material. In the interior this is carried out with highly decorative effect, numerous designs in bas relief being introduced of an appropriate character, and having all some relation to the purpose of the building, and in most cases admirably modelled. But the architectural importance of the interior really consists in the fact that it is a new and most effective application to modern architecture of the phase in the history of arched architecture which is generally known as "Romanesque," and which may be defined as architecture in which the Gothic or mediæval spirit has been largely developed, but previous to the introduction of the pointed arch. This interesting and very solid and imposing phase of architecture has been copied occasionally in modern times; that is, simply reproduced in its ancient form. But Mr. Waterhouse has done more than this. He has made out of the materials suggested by the old Romanesque style an architecture quite modern in feeling, and completely suited to the purpose of the building and to the material in which it is executed. Entering through the principal door, we come into a great hall, which forms the central feature of the interior, and which is lighted from an arched roof.

On each side are deep, heavy, arched recesses, with special light of their own, and which are intended for the arrangement of special classes of objects, while the objects of more general interest, which present no hint for special classification, are arranged in the centre of the floor. At the further end of the hall rises a staircase, leading to open galleries, which run along each side of the hall above the arched recesses before named, and by these galleries we return again to the entrance end of the hall and the staircase which leads to the higher level of the first floor galleries of the wings of the building. This staircase is carried over the hall on a great semicircular arch the whole width of the hall, a treatment which produces the most picturesque effect, both from above and from below, and is one of the finest points to be found in any modern building in the country; and the whole of this portion of the interior is full of fine effects of architectural perspective and composition. All the details of the internal architecture have been most carefully considered, and are all artistic and pleasing, without costliness or over-elaboration; among other things, the treatment of the windows is remarkably successful. It is unfortunate to have to add that the architect of the building, a practical man as well as an artist, has been thwarted in one of the best and most practical features of the plan of the building by official interference. In order to render the collection of objects conveniently available for scientific study as well as for popular edification, Mr. Waterhouse had contrived private corridors running between the larger halls, into which the public would be admitted, so arranged that the cases containing objects of special interest to scientific students should be accessible from the back from these corridors, and capable of being opened for close inspection and study under proper control, while the cases on the side towards the public rooms would be always closed under glass. Nothing could be more practical and useful, apparently, than such an arrangement, which, however, has been countermanded, for the present, at all events, for unintelligible reasons, though there is still the possibility of carrying it out in the future.

The present year has also seen the completion of a very large and important work, which is not, like Mr. Waterhouse's building, a modernised adaptation of an old style, but a complete reproduction of a mediæval form of building in mediæval style; we allude to the new Cathedral at Edinburgh. It would be out of place here to discuss the question of the suitability of

building cathedrals at all at the present day, when the Church occupies so different a place in reference to the life of the nation from that which it occupied when the mediæval cathedral grew into being: our readers will have their own opinions on that subject. It must suffice to chronicle the fact, certainly an architecturally important one, that a large cathedral has been completed in a remarkably short space of time—a cathedral emulating in size and architectural magnificence some, if not all, of our genuine mediæval cathedrals, and designed by the architect who unquestionably knew more of Gothic architecture than any other modern architect; who had, in fact, studied it so, that it had become almost a second nature with him, and who, if his life had been spared, would have seen with peculiar satisfaction the completion of an entire modern cathedral from his own designs, after he had been so many years of his life occupied in restoring ancient cathedrals. The Cathedral is in that early English or "Lancet" style, for which Sir G. Scott had a peculiar affection, and which combines solidity with grace in a more balanced form than perhaps any other style of English Gothic architecture. The Cathedral has a centre tower with a fine spire; the nave consists of seven bays, with cylindrical and octagonal piers alternately; and the choir of four bays, with piers formed of clustered shafts. The nave is divided from the transepts by a screen of alabaster, enriched with inlaid panels and coloured marble shafts; the choir aisles are shut off by ornamental iron grills, decorated with gilding; the choir is furnished with carved walnut-wood stalls; a considerable amount of stained glass, rather various in quality, has been placed in the windows, partly the gift of private individuals; an organ by Willis is in course of erection; and a peal of ten bells, by Taylor, of Loughborough, will be placed in the tower. This is a great change from the days when stained glass, organs, and all such vanities would have been scouted on Scottish soil as inconsistent with true devotion. While speaking of Edinburgh, it may be added that a great deal of rebuilding is going on in the city, which almost necessarily includes the removal and rebuilding of many of the high, blackened, picturesque old houses which gave so much of its peculiar character to the city, though they were certainly completely out of keeping with the title of "Modern Athens," which had been rather too hastily bestowed on Edinburgh. It is impossible not to regret the demolition of many of these old streets and "wynds" from the artist's point of

view; but no one who has adequate ideas on the sanitary conditions of a city can feel otherwise than that their removal was an absolute necessity.

Another piece of work which has been in progress during this year, and with which also the name of Sir G. Scott is connected, is the restoration of the north transept porch of Westminster Abbey. Though a far smaller work than the new Cathedral of Edinburgh, the great national interest of the building renders any alteration or restoration in any part of it a matter of importance. The north porch, which had been called "Solomon's Porch" in old days (in allusion to its special richness and elaboration), had been overlaid by later and very inferior work; but enough traces of the original work have been found to enable an architect so learned in mediæval detail as Scott to restore the whole design on paper, and considerable progress has been made during the last few months in carrying out the work *in situ*. It is, of course, idle to say that this is the same thing as having the original work back, and if there were any at all proportional merit in that with which it has been overlaid it would have been wiser to have left the latter, as being at any rate real and historical work. But the late work was in fact architecturally weak and worthless to a degree, and it was far better to have even a copy (for it is little more than that) of the original design than to have the portal left in the meagre and despoiled state to which it had been reduced in an age when mediæval architecture was not in the least understood. The design, when its restoration is completed, will show the three doorways, the centre and two side ones, with their deeply recessed arches filled with rich carved ornament, and the wall space between the centre and the side arches decorated with niches and figures. The completion of the whole will necessitate the lowering, probably, of the level of St. Margaret's Churchyard, now considerably above the floor of the Abbey: another illustration of the constant tendency to the raising of the ground-level wherever ground is much disturbed in the restricted spaces of a crowded city.

Having touched upon some of the last architectural works of our late distinguished and successful architect, it may be not out of place to allude to the appearance of the volumes containing his "Personal Recollections," edited by his son, as an event of some interest in the architectural world. There is a great deal in these volumes that is of considerable interest in the description of Scott's early studies and recollections, and of the state of

architectural taste, or rather the entire absence of any such taste at the time when he commenced to learn the profession. It must be confessed, however, that a good deal of the latter portion of the book is taken up with accounts of architectural polemics of various kinds which have no longer (if they ever had) any interest for general readers, and that the publication of the "Recollections" has not on the whole operated advantageously to the memory of the distinguished church architect.

The general course of architectural work during the past year can hardly be said to have shown any special movement or advance in one direction or another. Perhaps in London the most marked characteristic has been the development of a love of red surfaces, shown either in the revived brick style called after Queen Anne, or in the deliberate painting over in strong red of many houses and parts of houses of the old cement type. We certainly want more colour in our streets, and perhaps this rather crude beginning may lead the way to a more thoughtful and artistic development of colour in our street architecture. In other respects town architecture seems to go on pretty much in the same groove in which it has recently been travelling; the more commonplace buildings taking the usual forms of "Italian," which have long been consecrated to town architecture in the eyes of those who may be called regulation architects, while those who aim at artistic effect have been continuing to play variations on the Queen Anne string, leading to the production sometimes of some piquancy and novelty in detail, and certainly of a great deal of costly and beautifully executed brickwork, which, as improving the character and the standard of work, is in itself a gain. We may mention some few of the works which seem most to call for notice in London and elsewhere.

Among other things, it cannot be overlooked that the class of building known under the title of Restaurant has assumed lately an importance socially and architecturally which it never had before. It has become, in fact, a kind of club for the million, and is fitted up with a degree of luxury and show which many clubs would be as unable to emulate in costliness as they would be unwilling to imitate them in style. The "Criterion," which was the first of these large establishments, has been recently enlarged, and a new establishment of this kind has been completed this year under the title of the "Gaiety" Restaurant, in connection with the theatre so named. The elaborate and showy decorations

of these buildings, though by no means free from vulgarity and ostentation (which cannot be wondered at when it is considered that they are more or less of the nature of advertisements), are at any rate very greatly in advance, in point of taste, of anything which it was formerly thought necessary to place in buildings of this class; and so far we may note an advance, though of a rather doubtful kind—the tile and other decorations for ceilings and walls, in these buildings, erring in fact rather on the side of attempting too much and producing the impression of art-decoration turned out by machinery, than which nothing can be more opposed to true taste. Mr. Verity, the architect of the "Criterion," whose name has now become connected with buildings of this class, also designed and superintended its more recent successor in the Strand.

The buildings in connection with the new Northumberland Avenue do not seem, so far, to promise anything out of the common run of the more costly description of street architecture; the Grand Hotel, now externally completed, has no features to distinguish it from many other buildings of the same class. The necessity for making the most of every foot of the ground compelled, we are told, the employment of an unbroken mass of frontage without projections or recesses; but it is surely time for architects to consider whether they cannot adapt themselves to circumstances, and achieve picturesque appearance under such drawbacks, by some other method than falling back upon the hackneyed resources of worn-out Italian details. Mr. Gibson's building for the Christian Knowledge Society, on the other side of the same street, though somewhat heavy, and also made out of well-worn details, exhibits a successful attempt to gain variety of surface and grouping by the large recessed arches on the upper story, and the effect of the whole building is dignified, though cold. If we may judge from published illustrations, the new building for Drummond's Bank, in course of erection at Charing Cross, will do nothing to relieve the heaviness of the new architecture of the locality. It will, no doubt, be a building practically suited to its purposes, for its architect, Mr. Hardwick (consulting architect to the Bank of England), has much experience in such buildings; but, artistically speaking, it appears the most absolute common-place of architecture, without a single feature of novelty or interest.

One of the finest and most successful buildings coming under the head of commercial architecture which has been completed

during the year, is Mr. Waterhouse's building for the Prudential Assurance Company in Holborn. This is noteworthy as one of the few recent instances of a large building in the Gothic style, which has now so nearly given place to the various species of what may be called "bastard classic." Mr. Waterhouse, however, is not one of the architects blown about by every wind of fashion, and he has given us in this building one of the best specimens of that style of Gothic, a little deficient in *verve* and picturesqueness but nevertheless very refined, which he has elaborated for himself on the basis of early French Gothic. The building is also a remarkably good instance of workmanship in rubbed and cut brick and terracotta, and is in every way a valuable addition to London street architecture.

The Paddington branch of the London Joint-Stock Bank, by Messrs. Deanes and Florence, is a building showing considerable originality as well as suitability of style, as might be expected from the fact that the junior partner in the firm is well known as one of the cleverest draughtsmen and designers of the younger generation of architects. Some of the best works of the year in London, however, have been in the class of warehouse and manufactory building, which has ceased to be necessarily mere bricklayer's work. The new warehouses in Southwark Bridge Road, for Messrs. Petty, Wood, and Co. (Messrs. Roumieu and Aitchison, architects), may be mentioned as a large and striking building of this class, showing, however, more force than refinement of detail. A smaller building for a bookbinding establishment in White Hart Street, Strand (Messrs. Clarkson, architects), is an excellent specimen of simple and practical treatment of a building of this class. The Leather Exchange at Bermondsey may be mentioned, though a building of no very special character; but the London Leathersellers' Company have set an admirable example in the way of architectural decorative art in the new iron gates to their Hall in St. Helen's Place, which are entirely hand-wrought in every part, without castings or any mechanical appliance whatsoever. It is only by work of this kind that anything can be produced worth calling decorative art, which in modern days has been nearly killed by machinery. The work was done from the designs of Messrs. Wilson and Aldwinckle, the architects to the Company. A good deal has been in progress this year in the way of what may be called City architecture; among which, the Manchester Hotel, in Aldersgate Street, may be mentioned as one of the most im-

portant, and perhaps, also, one of the most successful, recent buildings in the City neighbourhood, and which is also noteworthy as one of the few buildings lately erected in the late Gothic style. But, in general, it cannot be said that new architecture in the City shows any very original features. That venerable institution, the Bow Street Police Court, is coming out in a new dress, but neither will this exhibit any definite character, and it might as well be a club as a police court. A more important building is "Temple Gardens," the new block of very showy building which has lately been erected at the end of Middle Temple Lane, and which has been carried out under rather peculiar circumstances, as the site was the property partly of the Middle Temple and partly of the Inner Temple, and the two societies both wishing to build, agreed to adopt the same style of building; and eventually what was at first to have been two buildings was compressed into one, and Mr. E. M. Barry, the architect to the Benchers of the Inner Temple, was entrusted with the entire external design; he and Mr. St. Aubyn, who was engaged on behalf of the Middle Temple, being each responsible separately for the internal arrangement of his own half of the building. The building is in an ornate and not too refined Renaissance style of French type; and the first thing that must occur to every one who considers architectural style and association at all, is how completely all the old associations and picturesqueness of the Temple neighbourhood are put to flight by the advent of this pretentious stranger among them. Architecture ought, no doubt, to look to the future as well as to the past and present; but it does appear an exceptional deficiency of taste and sentiment to have built such a "grand hotel" style of thing in such a site, and one may think that at least some assimilation with the style and feeling of the architecture of the place might have been attempted. There are sites and neighbourhoods where such a building as this might be favourably criticised as a "handsome structure," but its effect is fatal to much of what endears the Temple to all who love the reminiscences of old London, and it certainly need not have been so to such a degree.

Among buildings which claim a word of notice are those which are erected for Exhibitions, of which our colonial friends at Sydney have produced a large specimen for the Exhibition which is now open. The building presents nearly the usual features of erections of this class; the central dome appears to be well treated,

and though the whole building seems, from the illustrations transmitted to us, to be plain enough, there seems no indication of such exceedingly flagrant and flaunting taste as was displayed in many portions of the Paris Exhibition building. A Fine Art Exhibition has been built at York also; this, however, is not a temporary, but a permanent structure, and though there is nothing out of the way in the architectural detail and treatment, the amount of sculpture introduced will, when completed, and if of good quality, give a certain degree of special interest to the building, and it appears to be well and effectively grouped on the façade. Among other works of interest which have been in progress in the provinces may be mentioned the new Town Hall for Great Yarmouth, a picturesque application of details borrowed from Elizabethan and Jacobean architecture, and rather happily assimilated by the architect, Mr. J. B. Pearce. The competition for this building was one of some importance, and brought out a good many good designs, of which the selected one may be said to be one of the best in keeping with the style and general aspect of the town. In Liverpool a new club has been opened in the early part of the year, under the title of the "Reform," the building for which shows a considerable amount of originality, in a design that is classic in feeling, but treated mainly in brick with considerable refinement of design and execution, though a little heavy. New street architecture has shown much development in this large town, and much of it is of a very high character; and an important building has also recently been opened under the title of the Picton Reading-Room (named after an eminent citizen of the town), which takes the now unusual form of a circular Greek colonnaded building, and has a graceful effect between two masses of square building (the Free Library and the Art Gallery), which abut upon it at different angles. Mr. Waterhouse's new hall for Balliol College, Oxford, is a good specimen of modern Gothic with some specialities of treatment, and very appropriately designed to express its purpose; and the private chapel at Eaton Hall (the seat of the Marquis of Westminster), by the same architect, is another specimen of modern ecclesiastical architecture of a very satisfactory type from a certain point of view, and which in style and dimensions rises almost to the dignity of a church, having attached to it, but nearly detached from the building, a lofty and powerfully treated tower, in which is hung a carillon peal by the celebrated bell-founder of Louvain, Van Aerschodt. The tower presents a kind

of mixed derivation in style, the details being Gothic but the main design partaking of the Italian campanile character, a lofty and near straight-lined stalk without buttresses, carrying an over-sailing clock stage, which is surmounted by a short and graceful spire. The very active and rising town of Barrow-in-Furness has supplied itself with a Town Hall of large dimensions and admirable design, by Mr. W. H. Lynn, an architect of real genius, both in planning and designing, and whose treatment of the central tower especially of this Town Hall deserves, and will probably receive, much admiration. The building of asylums has been a feature in provincial architectural work; the proposed new county lunatic asylum for Gloucestershire gave rise to a large competition, in which a good many very admirable plans were submitted; and the Lincoln County Hospital may be mentioned as a building in which the practical requirements of planning, &c., in a building of this class have been very successfully combined with picturesque outline and effect in a manner perfectly suitable to the occasion. A small building, the Stephenson Memorial Hall at Chesterfield, ought not to be passed over, on account of the interest attaching to the name of the great engineer to whose memory it was built, in sight of the house in which he died. The building comprises a public hall and rooms for educational purposes, and is a quiet-looking design of domestic Gothic character, appropriate enough for a building of that class for a comparatively small town.

It would be impossible to say that the year 1879 has been marked by any peculiar or definite step in architectural style. It may be readily observed that the decline of interest in revived mediæval architecture has taken no turn, and that mediæval buildings, not long since the rule, are now the exception; and the style which is founded on revivals of Jacobean and Queen Anne architecture, though increasingly prevalent, has not yet shown any symptoms of leading to the development of a new classic style, as many of its adherents have predicted it would; on the contrary, it appears to consist still of mere copying, and the copying of bad and corrupt detail, which can from no point of view be called artistic. Among some of those who have given themselves to this manner of architecture, however, there is evident a wish to produce characteristic architecture suited to its purpose, which, on the whole, more recommends itself to us than the cold and bare classicisms, without colour or character, with which so many architects of clubs, banks, and public institutions are still content. It is impos-

sible, of course, that modern architecture should sever itself from or forget the past—some copyism and reproduction the most original building must show; what we feel more especially is the want of direct attempts to deal with special problems in a special way; the perverseness with which, when a building has to be erected the conditions of which in regard to site, materials, and requirements really give every suggestion for speciality of treatment, all this is ignored and the special qualities of the building are stupidly hid away behind a mask of regulation pilasters and such-like architectural furniture. What is above all required is that architects should be induced to take the trouble of thinking out a problem for themselves, and resolving it in what is really the best and fittest way under the circumstances. Till we can get a large proportion of the best educated of our architects to take this course, instead of flying to old and unsuitable types of design, merely to save themselves trouble, there will be no real architecture among us. There is little enough at present, and the few refreshing instances only serve to intensify our impression of the general weakness and insufficiency of the architecture of the day.

THE EXHIBITIONS OF PICTURES IN 1879.

SEASONS and circumstances influence art and artists as they influence all the callings and conditions of life. The mental lassitude which comes of prolonged physical depression in the individual finds its counterpart in society as a whole and in its several sections. Exceptions there no doubt are, but till the burden is lightened the languor will prevail. Such seems to have been the characteristic of the year now fast passing away. Commercial inactivity, agricultural distress, heart-sickening wars, could not but affect the hopes, interests, and prospects of a race of men, who, from their mental idiosyncracies and the uncertainties of their profession, are especially subject, not only to all skyey influences, but to all mundane disturbances; and an atmosphere of debility pervaded the year's exhibitions. There was no deficiency of good work. The deficiency was in worthy effort. Technical skill, up to a certain point, was more marked and more general than it used to be; but not the highest kind of technical skill: the art which conceals art, the art which causes you to forget that art is there. Of technical and manipulative dexterity there is no lack in the world. Such dexterity is a delightful thing in its way, but it is not all and it is not sufficient. A well-painted picture is not necessarily a good picture, any more than a well-written book is a good book, or a well-rhymed poem a good poem. Behind the mechanism there must be intelligence. Even the humblest picture requires for vitality a scintillation of the painter's mind; some evidence of a purpose in the artist; something showing the possession of that *idea* which, in his famous letter, Raffaelle said he had always formed in his mind when he began a picture and kept before him during its progress.

The absence of elevation of purpose so noticeable in our exhibitions this year is not peculiar to England. In that respect we suffer in common with our neighbours. French critics have waxed eloquent in their lamentations over the decadence of high art as evinced by its absence from this year's *Salon*, or inferiority when feebly attempted. May we then, perhaps, conclude that there is a change in the current of thought in the wide world of art rather than an actual depreciation; a lowering of the aim, or shifting of the point of view, and not inability to reach the higher standard?

The motto on the catalogue of this year's Exhibition of the Royal Academy told us that "The Artist is not afraid of the common-place; for his very touch ennobles it." The first clause of this sentence might have been placed over the entrance to the Academy as well as on the title-page of the catalogue. It was, in fact, the programme of the exhibition, for the common-place was on all the walls; only the ennobling touch was too commonly absent.

If we commence our rapid review with works of a religious order, to which the first rank is usually, and not improperly, assigned, we must, alike in respect of his office and the dignity of his subject, begin with the President's "Elijah in the Wilderness" (188). But with the best will we cannot regard it as satisfactory. Elijah lies sleeping in a most constrained attitude, naked but for the cloth about his loins, and by him is the angel—who, if it were not for a resplendent pair of wings, would look like a very substantial child of earth—with the cruse of water, looking, but with half-averted face, at the sleeping prophet. The Tishbite has not chosen a juniper tree under which to repose, and his stalwart and muscular limbs show no signs of the weariness and distress which caused him to "request for himself that he might die," and to say "It is enough: Now, O Lord, take away my life." Rather the figure reminds one of Michel Angelo's muscular prophets alike in *pose*, robustness, and vigour. But it is not given to every one safely to challenge such a comparison. Michel Angelo's mighty-limbed lords of men are dashed in with a force and haughty defiance of minor conventionalisms that make them seem the instantaneous product of his giant mind. Here the figure is polished and elaborated to a smooth waxen delicacy of surface, and man and angel are of like texture and substance.

The "Woman taken in Adultery" (203), of Mr. Armitage, is a learned and able composition, thoughtfully and carefully worked out in all its parts, but somehow falling short of the impression it was intended to produce. What seems to be wanting is a little more fervour. Mr. Armitage is learned, refined, thoughtful, conscientious, a painter who always commands respect; but, withal, there is something of rigidity. "Poetry," said Milton, "is simple, sensuous, passionate," and, in its measure, this is true of painting. You see it in Raffaelle, in Tintoretto, in Titian, in Rubens, in Rembrandt, in the painters of every school who have really stirred the hearts of men. Mr. Long's two large pictures, "Esther" (102) and "Vashti" (955),

were placed too far apart to be properly estimated, as they are of the same size, and were evidently intended to be seen in conjunction. They are very beautiful examples of Scriptural decorative painting; art not of a reverential or strictly religious order, but manly, well-considered illustrations of Scriptural subjects and of Oriental habits. A grander moral was set forth in the half dozen little panels, in one frame (Nos. 987 to 992), in which Mr. T. M. Rooke exhibited the story of "King Ahab's Coveting." Mr. Rooke adheres to a quaint mediævalism of manner that does not exactly consort with the Old Testament breadth and simplicity of diction, but he does not, like some of his bretheren, carry it to (or beyond) the verge of grotesqueness, and there is throughout a salutary and saving spirit of truth and sincerity. In some of the tablets the colouring is very sweet and harmonious, but the charm of the series lies in the insight into the spirit of the story and the feeling with which it is embodied. Mr. Goodall's pair, "Sarah and Isaac" (440), and "Hagar and Ishmael" (446), are faithful, no doubt, to modern Oriental life and manners. The ancient Oriental spirit of the narrative in Genesis is not, however, there. Mr. Goodall has translated the plain Mosaic diction somewhat after the "goody" fashion of the passage from the "Women of Israel," which he has taken as his text. As pictures, however, they are nicely painted, and form a pretty pair, while as engravings they are sure to be popular.

Nor were the historical works more numerous or of a loftier aim. Very few were properly historical in scope, nearly all being representative of some personal incident or picturesque episode. The most ambitious effort, and the picture which in this line attracted most attention, was Mr. Pettie's very powerful "Death Warrant" (220). No date or name is attached and, therefore, the incident might rather be assigned to the region of fiction than history, but the likeness of the chief personages is too strong, and the costumes are too marked, to leave any doubt as to what is intended. "The Death Warrant" is meant to represent the youthful Edward VI, at his council called to sign his first death warrant. Mr. Pettie has treated his theme very much after the manner of the great Belgian master Gallait and his followers. Taking a very few figures, and disposing them so as to allow of the utmost breadth of light and shade, he has contrived to obtain a brilliant if not exactly natural effect of sunlight with powerfully contrasted masses of heavy shadow, and great richness of colour. That the treatment is conventional, savouring rather of

the studio (and, perhaps, a little of the stage) than of the sombre council chamber, it would be idle to deny. But it is effective, and that is what Mr. Pettie meant it to be. From the painter's stand-point, it is a thoroughly successful work, and that would, we have little doubt, be the verdict of a jury of painters, if such a jury could be impannelled to try its merits; but regarded from a different point of view, where the technical would be placed in subordination to the intellectual qualities, indeed only taken into account in so far as they served to embody and elucidate the historical idea and inner meaning of the theme, the verdict might be different. But, even under this regard, the head, and indeed the whole figure of the half-wearied, half-puzzled, and wholly saddened monarch, must be pronounced to be deeply pathetic, while the trait of the plucked rose is probable in itself, and very characteristic. The heads of the cold, hardened, and selfish councillors are also, in their way, well discriminated and admirably painted.

A like breadth and boldness of treatment, following somewhat more closely, however, on the conventional lines of the old masters, and equally free from dependence on any actual historical event, is shown in Sir John Gilbert's "Return of the Victors" (403), a long and sumptuous procession of mounted knights on richly caparisoned steeds, with pennons flaunting and helms and lances glittering in the sun, fair maids and rejoicing matrons chanting their welcome, and merry children casting flowers in the way of the victors. It is a procession as jubilant and full of life and vigour as one of Rubens, but a little more decorous, and with just a little less inspiration, and it must be confessed a good deal less power. In the "Gordon Riots" (25), Mr. Seymour Lucas did not select a promising subject, nor is the picture an attractive one; but it merited all the attention it received for the very careful way in which the young painter had worked out the details of a painful incident in our history. The long lines of the Foot Guards in their uncouth uniform must have been hard to deal with, but they are depicted with strict fidelity, yet rendered picturesque by skilful arrangement, while their soldierly bearing is perfectly maintained. Pathos is given to the miserable affair by the dead and drunken wretches who lie stretched in the road and on the footways; by the dying soldier in the foreground, on whom his nearest comrades, without losing self-command, or stirring from their ranks, are casting a pitying but furtive glance; and the

broken furniture and plate flung from the ransacked houses and strewn unheeded about. The sombre brick houses, studied from those still remaining in the neighbourhood, the smoke and fire, complete the picture and give reality to the scene.

Mr. Eyre Crowe turned to the French annals of but a few years later for subjects on which to exercise his pencil, and he too selected themes of painful interest. His pictures were "Marat: 13th July, 1793" (301) and "The Execution of the Duc d'Enghien, 1804" (943). Marat is sitting in his bath engaged in writing down the names of the Girondists doomed to be the next victims of the guillotine, as Charlotte Corday opens the door of his apartment. Every part of the picture is finished with the hard realism which has become with Mr. Crowe a second nature. The room, the furniture, all the accessories are so scrupulously exact, that one would think the painter must have seen and painted them on the spot. Marat is equally true, but one can feel no sympathy for the atrabilious scoundrel, though death, all unexpected, stands so close beside him. And Charlotte Corday—well, we will pass on to the other picture. In the murder of the gallant young Prince there is at least something to touch the feelings, and Mr. Crowe seems, more than is his wont, to have felt the pathos of the dismal tragedy. The scene has all the air of reality, without being overburdened with detail, thanks perhaps to the darkness visible in which it is wrapped; it is a well painted picture, and in its way impressive.

Widely different in subject and manner, but still minutely accurate in all its parts and details, was the "Royal Pastime in Nineveh" (441), of Mr. F. A. Bridgman. The painter is not an Englishman, but next akin to it, an American, and it was a pleasure to see his first great picture allotted an honourable place on the walls of the Royal Academy. Mr. Bridgman has studied his art in Paris, and it is easy to see in his work the influence of Gérôme, alike in choice of subject, plan of composition, and mode of treatment. But there is enough of individuality to redeem the work from the charge of imitation. The scene is an amphitheatre, where in the arena is a King of Nineveh making sport for his subjects, who crowd the auditorium, by shooting with bow and arrows at a lion as he emerges from his prison-house. One noble fellow lies dead almost at the King's feet; another stands with open mouth and stiffened tail ready to spring, but the fully bent bow in the King's hand shows that

the arrow will speed on its unerring errand before the monarch of the forest shall have recovered from his bewilderment. The distinctive feature of the picture is the multiplicity and accuracy of its archæological details. Every object has been studied, and most of them have been copied from the Assyrian marbles, even to the figures of the King and his attendants, and the *pose* of the lion, the only exception seeming to be the bronze gates, which have been drawn from the gates themselves. These details are not, however, unduly obtrusive or archaic, and they impart to the whole the true Assyrian savour, but they at the same time necessarily give it a somewhat foreign and constrained air. We miss in it the *abandon* and spontaneity which give life and reality to the canvas; but it is an excellent work and affords promise of greater excellence in the future.

In the domains of poetical and mythological art the first place must be given to Mr. Poynter's great picture of "Nausicaa and her Maidens playing at Ball" (307). It is at once poetical and classical, but it is also strictly decorative. To be judged aright, therefore, it should be seen in the place for which it was painted. There, alongside the other pictures of the series, what seemed questionable on the walls of the Academy might be found right and reasonable, and the high pitch of light and colour exactly suitable to the situation. But looking at it as it was to be seen at Burlington House, it hardly seemed equal to the Atalanta of 1877. There was abundant vigour, especially in the figure of Nausicaa and in the leaping boy, graceful draperies, charming colour, but not the old Homeric strength and spirit.

Another great picture, belonging strictly to the region of imagination, was Mr. Briton Rivière's "In Manus Tuas Domine" (487), a youthful knight about to enter—in the strength of his faith, and holding aloft before him as his holy talisman the cross of his good sword—the enchanter's cave of the mediæval romancists, corresponding in its horrors and its dangers to the Valley of the Shadow of Death of a later Dreamer, and, like it, to be passed through in safety only by the earnest and faithful Christian hero. Mr. Rivière's knight looked somewhat too youthful, gay, and debonair, to fitly encounter such peril, and the landscape was hardly suggestive enough of the horrors of the way. But the animals were splendidly rendered. The expression of terror in the white charger and in the crouching hounds was perfect, and the painting was as good as the design and drawing.

But we have stayed too long in these high latitudes; let us descend to those familiar scenes which make up the bulk of the "figure pieces" in this year's exhibition. Mr. Fildes' great picture, "The Return of a Penitent" (63), can, however, we hope, hardly be accounted a familiar scene. Yet, except the ruined cottage and the poor woe-begone penitent lying heart-broken on its doorstep, every bit of it is intensely characteristic of the English village. The sturdy ploughman with his team, the merry children, shame-faced maidens, and self-satisfied and self-righteous housewives, are true as the life itself. The execution is equally true, manly, and able. But why will Mr. Fildes only give us such gloomy subjects? Has he got away from the misery of the grimy streets only to search out the sorrows of the village? His pictures have a moral, and it is needful that the sad as well as the brighter side of humanity should be shown; but it is not well to dwell always in the darkness.

Mr. Marks finds sunshine in the shadiest spot. He traverses a landscape of the dreariest common-place, makes a picture of it, puts in a couple of figures not bigger than your finger, calls it "Intellect and Instinct" (73), and it becomes "a joy for ever." The two little figures are a bookish country parson and his little dog. The parson, having the bad habit of reading as he walks, has gone forth on his rounds with a book in his hand and others under his arm, and, becoming absorbed in his reading, drops first a book and then a glove, but goes on his way quite unconscious of what has happened, while Tray, standing by the fallen book, too heavy for him to pick up, but which he is determined not to leave, gazes in hopeless dismay after his master, whose attention he is quite unable to arrest. "Old Friends" (251), a couple of Greenwich pensioners in a ship-yard, looking with intense admiration at the range of figure-heads of old men-of-war which have been broken up in the yard, and fighting over again the battles in which they have shared, is another piece of quiet humour admirably told. Equally rich in its way is his diploma picture, "Science in Measurement" (379), and perhaps in respect of drawing and execution the ablest of the three.

Mr. Alma-Tadema was happy as ever in the representation of texture and surface in his smaller pictures, some of which were in all respects exquisite. Nothing in its way could be better than the "Hearty Welcome" (165), "In the time of Constantine" (627), and the "Pomona Festival" (351); but the large picture "Down to the River" (238) is only interesting for

the fine work displayed in parts of it. Mr. Alma-Tadema, though an associate of the Academy, is a Belgian, and this reference to his mastery over his materials reminds one of a fact very observable in this year's exhibition, and one of which our younger painters should take note. Pictures of the class on which we have just been commenting, in- and out-door scenes of familiar life, anecdotal incidents, subject-pieces, *genre* in short, as our neighbours broadly say, form the staple of our "figure painters." This year there has been an unusual influx of foreign painters to the Academy, and these are just the subjects they have chosen by preference for the display of their skill. Now in *genre* pictures not only good drawing, composition, and colour are required, but particular manipulative dexterity and facility in rendering every variety of surface and texture. But it was in this technical knowledge, this thorough mastery of hand that the foreign artists showed an indisputable superiority, not only of greater skill but evidence of better training. Taking as representatives of different schools Alma-Tadema, Ferdinand Fagerlin, Tito Conti, and Edouard Frère, you had four *genre* painters, of as many different countries, all superior in knowledge of the technics and mastery over the materials of their art, facility of hand, and capacity of rendering the exact truth, tone, and variety of surface and texture in all parts of the picture, and especially in the accessories, and yet maintaining all in due subordination to the main purpose of the work. This used not to be the case, and ought not to be the case now.

We have taken the war-fever lightly compared with our neighbours. There were few, if any, war pieces proper in the exhibition, and not many in which soldiers played the leading part. Mrs. Butler's "Remnants of an Army" (582) was most talked of, and will be engraved. "Listed for the Connaught Rangers" (20) was also popular. Mr. Woodville's "Before Leuthen" (511) was a very good picture. Mr. Crofts' more elaborate "Evening of the Battle of Waterloo" (613) was more conventional and less successful. Though not exactly of this order we must accord a word of hearty recognition to Mr. Small's vigorously painted "Captive Briton" (460), of its class one of the most original works in the exhibition. Mr. Gow's "No Surrender" (324) was also a work of great animation, and exceedingly well painted.

Millais's portrait of "The Right Hon. W. E. Gladstone" (214) was the finest male portrait in the exhibition, and, as we believe, the best Millais has painted—firm, manly, earnest, and an excel-

lent likeness. But it is not Gladstone as he appears when roused in debate, or animated in conversation. Fine as the head is it has an air of weariness, almost of sadness. It is not Gladstone the statesman, or the inspired orator, but rather the man as he might be seen at the close of a long speech, or protracted sitting; earnest as ever, but the brilliancy has left the eyes, and care is seated on the brow. Still it is a noble portrait, and nobly painted. We wish we could say as much for Mr. Ouless' portrait of Gladstone's great colleague "John Bright" (183), but here all the strength, character, and individuality have been smoothed away, and we have a personage sleek, simpering, and commonplace as a retired tallow-chandler. Worthy to take a place alongside that of Mr. Gladstone's is, however, Mr. Frank Holl's half-length of "Samuel Cousins, R.A." (189), the eminent mezzotint engraver. Of the ladies Mr. Millais's portraits are again the most striking, but more from the reckless dash and crudity with which their dresses are painted than for the countenances. The observer had, indeed, to recede a few paces to see that these strange dabs and blots of colour are placed where and how they are with a calculated purpose, and produce the effect the artist intended. It is the art of the scene-painter applied to portraiture. How far it is an improvement on the manner of Titian and Velasquez, Vandyck, Reynolds and Gainsborough, it is not for us to say. But it was a comfort to turn from these to such pictures as the "Famille D." (1030), by M. Fantin, to see that the old sobriety of manner and self-restraint are not everywhere abandoned. These fine portraits, firmly drawn, distinctly individualized, the men unassuming, the ladies graceful; and the exquisitely painted heads of M. Bastien-Lepage (149, 156) formed a contrast to the many square yards of inane and pretentious insular portraiture, which was far from gratifying to our national pride—though as a small consolation there were some portraits by foreign painters viler than the worst of native production.

The landscapes were numerous, and on the whole showed an improvement on those of recent years. But our landscape painters are growing confirmedly imitative. Of ideality and imagination we have less year by year. All feeling for splendour of colour seems to have died out. Turner has not only no follower, but the poetry of colour is changed into the veriest prose. All landscape is now addressed to the eye merely. But thus limited it has reached a high point of excellence. Mr. Vicat Cole's pictures seemed to win most admiration. "Ripening

Sunbeams" (245) displayed great ability and great industry, and the sunny effect was fairly sustained; but the canvas was too large for the subject. We liked better his "Autumn Leaves" (4), which, though less ambitious, showed more feeling and a truer touch of poetry. Mr. J. Linnell's "Fat Pastures" (120) and "Sweet fa's the Eve" (125) were really wonderful pictures regarded as the work of a man in his eighty-seventh year. It would be idle to say that the hand had lost none of its cunning, or that the forms were in all cases satisfactory; but there was still much of the old fire, the old feeling for colour and space, and there was a resolute grappling with the problem in hand which might shame many a younger professor. Thames scenery seemed to be much in favour, and much of it was very prettily painted. So were the Surrey heaths and greensand lanes, the Suffolk marshes and Norfolk broads; and so, too, were dreary Brittany levels, with scarecrow trees stuck flat against cadaverous skies. The Scotch landscape painters—Grahams, Macdougals, Macgregors, Macwhirters, Macbeths—were in great force, and showed well the vigour and vivacity of the school. It has so much vigour indeed, and has done so much good work, that something better still should come of it. But it must denationalise a little and civilise more. Works like "The Clang o' the Wooden Shoon" (526), "The Sea-bird's Resting-place" (447), of the Grahams, Macwhirter's "Valley by the Sea" (250), Macallum's "Water Frolic" (32), and half-a-dozen more, despite their intense conventionalism and self-assertion, were works of real artistic power. Millais's one landscape this year (150), titleless and with a quotation about a tower of strength, which stood four-square to all the winds, might be called a sketch, a study, an experiment, or perhaps a symphony, but certainly not a picture. To most people, however, Mr. Brett's large landscape "The Stronghold of the Seison, and the Camp of the Kittywake" (643), was more of a puzzle. And when the title was unriddled, and they learned that the stronghold of the Seison (Saxon) was Carnarvon Castle, and the camp of the Kittywake was a shoal on which sea-gulls disport themselves, they were almost equally bewildered. Remembering Carnarvon Castle as they had seen it from the Menai Straits or the Anglesea shore, they wondered whether they were to regard it as a "restoration" of the castle or a painter's vision of it. Hook's little gem-like scraps of coast scenery, on the other hand, were unaffected as Nature herself, and redolent of the sweet sea breezes. The

fisherman greeting his children who have run out to meet him as he returns home with his small catch of herrings, "Little to Earn and Many to Keep" (269), "Mushroom Gatherers" (275), and "Tanning Nets," were all admirable in their several ways, and showed that Mr. Hook can make himself as much at home in Aberdeenshire as in Cornwall, Dorset, or Surrey.

The Grosvenor Gallery is a welcome supplement to the Academy. You learn there what is the latest phase in the art of the "best society." Its very exclusiveness adds to the interest. It is a lesson in taste given you by those who do not condescend to exhibit at Burlington House. The rooms are elegant, never crowded, the company select, and the pictures few. As before, Mr. Burne Jones was the leading spirit, and he had this year several of his more important works. Chief was "The Story of Pygmalion," in four tableaux, painted of course in the manner of Mantegna—a fifteenth century version of an old Greek legend, told in the sentiment and spirit of the last quarter of the nineteenth century. But overlooking, if you could, the anachronism palpable on every inch of the canvas, and forgetting in like manner the Hellenic idea of Aphrodite, you would acknowledge the pictures to be in their manner alike beautiful and impressive, and recognise and respect the earnestness and devotion of the artist. The special mannerism of the painter came out more strongly and, except to his worshippers, more unpleasantly, in "The Annunciation." A wan and weary Virgin—but all maidens in this gallery, whether sacred or secular, look wan and wearied—receives the visit of an angel, who, with folded wings, seems to be suspended in some foliage on the opposite side, a combination so singular as to appear to the uninitiated almost grotesque. It was, however, declared to be a work of supreme excellence, and is evidently not to be judged by common laws. Mr. G. F. Watts had two important and carefully studied works, "Paolo Francesca" and "Orpheus and Eurydice," as well as two or three portraits. But this year Mr. W. B. Richmond's portraits were the more attractive and, if we may venture to say so, the better painted. His was also the favourite poetic piece "Sarpedon" borne "to the soft arms of silent sleep and death." Mr. Whistler had, of course, his symphonies and nocturnes, and also a very disagreeable life-size portrait of (apparently) a ballet-girl. Mr. Tissot had a full dozen of his pretty semi-sensuous paintings of weary-looking belles of the season—"idly luxurious now the season's o'er"—stretched in hammocks swung from big

chestnut trees or floating in a drifting boat among the water-lilies. From these idle and jaded beauties it was pleasant to turn to the subtle graces of Albert Moore's Greek maidens, or Sir Frederick Leighton's delightful out-door studies made in Italy, Spain, Egypt, and Damascus; or Herkomer's large, riant, and almost boisterous water-colour painting, forcible as oil, of "Light, Life, and Melody."

Both the Royal Academy and the Grosvenor Gallery had a Winter Exhibition. That of the Royal Academy was of paintings by the old masters, with a rich and varied selection of their drawings. A collection of drawings by the old masters, rivalling that of the Academy, formed the grand feature of the Grosvenor exhibition, together with a series of sketches and studies by Ingres, and a selection of paintings in water-colours. Both were of the highest value, and equally instructive, but obviously it would be out of place to speak further of them here.

The exhibition of the Society of British Artists was no better than in past years, and it is not likely to improve till it is thoroughly reorganized. Its improvement every lover of English art would welcome. An institution that would give young artists, and artists who for some reason do not find favour at the Royal Academy, a chance of bringing their productions under the public eye, would be of immense service. Painters increase in number every year, but the Academy walls do not expand, and admission, rejection, and suspension—matters often of life or death to an unknown and struggling man—seem to become yearly more capricious and inscrutable.

The two Water Colour Galleries were as pleasant to look round, or lounge in, as ever, but they presented no new feature nor any marked advance. In both galleries landscapes predominated, and many of them were very true and graceful. But elegance rather than strength was the prevalent characteristic. Our water-colour painters have gone on refining until they are on the verge of feebleness, and seem in danger of losing all originality. Is it that they come less than they used into contact with unsophisticated nature? Whatever be the cause, we look in vain round the walls for the variety, freshness, and power we used to see there when Cox, Dewint, Harding, Hunt, Cattermole, Taylor, Burton, Prout, and Copley Fielding, were among the leading contributors, each with a manner all his own.

SCIENCE OF THE YEAR 1878–1879.

In attempting to give some account of the discoveries in Science that have been made during the year, I am again, as in former years, met by the difficulty of bringing the mass of material which presents itself within the limits of the space at my disposal. Referring to the introduction of the article on the Science of 1877–1878 in last year's "Companion," it will be seen that I could only record a very few of the scientific events which had occurred during that period, and had felt myself compelled to select for mention only those which had an interest for the general public. To the scientific reader perhaps, who expects to find in such an article a complete record of the scientific work of the year, the omission of any mention of researches to which he attaches great importance may seem to be a defect of the highest consequence; but my answer is that the article is not written for such persons. Merely to state the bare fact of a discovery or investigation would be of no service to the general reader; for him there must be, at least, some account of the bearing and scope of the discovery, some sketch of the principles on which it rests, some description of the researches and investigations that have led up to it. Now, to do this in the briefest and scantiest manner for a tithe of the discoveries and events that have excited attention in the scientific world during the past year would far exceed the space allotted to this article. Remembering that it is to the general body of readers that I have to address myself, I must be guided in the selection of scientific events of which to give an account by the consideration of their being capable of being described in a popular manner and in few words.

Another difficulty presents itself in the endeavour to introduce some classification into the narrative; some discoveries whose results bring them within the sphere of one branch of science may have been effected by means more properly belonging to another branch. So, also, when its principles or the theory on which it has been worked are alone under consideration, it may be more correctly described as a discovery in physics or chemistry, but when the invention consists rather in applying that discovery, or in working it on an industrial scale, it may be included rather in the section of mechanics or engineering. All the appliances and constructions of the electric telegraph, resting though they do primarily on the researches of the physicists, are now generally

classified as coming within the region of the special branch of the profession of the telegraphic engineers.

Astronomy.

Astronomical science is not quite so rich in events of importance as we had occasion to record last year. Not that astronomers have been less diligent or painstaking, but that the great natural phenomena of the heavens whose occurrence could be predicted have not been so numerous. We have not this year had an eclipse of the sun, nor a transit of any of the inferior planets, and the unlooked-for comets that have made their appearance have been not only telescopic but insignificant from a scientific point of view, and therefore not able to shed any new light on the constitution of comets generally.

New Minor Planets.—Of these heavenly bodies eleven only have been discovered since the end of last year, as against nearly twice that number discovered during the same period of the preceding twelve months. The list given at page 177 of the "Companion to the British Almanac" for 1879 brought the total number of planetoids discovered up to the 30th September, 1879, to 192, but owing to want of information at the time of going to press, several mistakes occurred in that list. No. 190, there stated to have been discovered by Professor Watson on the 22nd September, 1878, was subsequently found to be identical with the planetoid No. 94, discovered by the same astronomer in September, 1867, and named by him Aurora. Owing to this error, the succeeding discovery of Dr. Peters, of Clinton Observatory, takes the number 190, the credit of finding the last four minor planets discovered in 1879 being due to the same successful observer. The total number discovered to the end of last year is therefore reduced to 191. Below is given a tabular list of all the planetoids discovered in 1879 (including also a corrected list of the last four of 1878), with the names of the observers and the names of the bodies themselves, so far as they can be ascertained at present :—

No.	Discoverer.	Place.	Date.	Name.
			1878.	
188	Peters	Clinton, New York ..	June 26.	Menippe.
189	„	„ ..	Sept. 9.	Phthia.
190	„	„ ..	„ 22.	Ismene.
191	„	„ ..	„ 30.	Kolga.
			1879.	
192	Palisa	Pola	February 17	Nausikaa.
193	Coggia	Marseilles	March 1	Ambrosia.
194	Peters	Clinton, New York ..	„ 22.	

No.	Discoverer.	Place.	Date.	Name.
195	Palisa	Pola	May 17.	Eurykleia.
196	Peters	Clinton, New York ..	,, 17.	Philomela.
197	Palisa	Pola	,, 21.	Arete.
198	Borrelly	Marseilles	June 13.	Ampella.
199	Peters	Clinton, New York ..	,, 17.	Byblis.
200	,, ...	,, ..	,, 28.	Dynamene.
201	Palisa	Pola	August 7.	Penelope.
202	Peters	Clinton, New York ..	Sept. 28.	

The planetoid No. 182 given on last year's list as first observed by Herr Palisa, has since received the name of *Elsbeth*, and No. 187, by M. Coggia, the name of *Lamberta*. Great difficulty is experienced in keeping an accurate account of these heavenly bodies and in checking the determination of their orbits. Of those recently discovered many have never been seen again; thus *Dike*, which M. Borelly first observed in 1868, and *Medusa*, first seen by M. Perrotin in 1875, remain virtually to be re-discovered. The most distant of the group of minor planets, *Hilda*, was first observed by Herr Palisa in 1875, and has been unsuccessfully looked for in 1879 near its calculated position of opposition. At its aphelion point *Hilda* approaches closely to the orbit of Jupiter, so that considerable perturbations in its orbit, due to the attraction of that planet, were highly probable. The determination of these perturbations, which its re-discovery in the present year would have rendered feasible, would have been a subject of great interest and importance.

Comets of the Year.—Three comets were expected to make their appearance in the course of the year 1879. The first of these was first observed by Brorsen in February, 1846, at Kiel, and has a period of about $5\frac{1}{2}$ years. It was seen again in 1857, 1868, and 1873, and was first observed in the present year on the 14th January by Herr Tempel, Director of the Observatory of Arcetri at Florence. In England it was first detected by Major Tupman on the 29th March. It was generally observed that the light of the comet on its return this year was less intense than before; but perhaps the most interesting phenomenon which it presented is the change which appears to have taken place in its molecular condition since its former visit in 1868. On the latter occasion, when examined by Dr. Huggins with a spectroscope, the comet gave a spectrum differing considerably from that of other comets. So far as comets generally have been studied with the spectroscope, they, with a few marked exceptions, give a spectrum possessing great uniformity of character, agreeing closely with

that obtained from the hydrocarbons at ordinary pressures. One of the well known exceptions to this general rule, however, was Brorsen's comet in 1868 ; it then gave a spectrum agreeing also with that from the hydrocarbons, but from the hydrocarbons in a different state of tension. Now, on its return this year, Professor C. A. Young—and he is corroborated by Mr. W. H. M. Christie, of Greenwich Observatory—finds that the spectrum is the same as that given generally by other comets.

The second comet whose return was looked for during this year was that originally discovered by Herr Tempel at Marseilles, in April of 1867, and again first observed by its original discoverer on its next return in 1873. Strange to say, the same indefatigable observer has the credit of being the first to detect it on the 24th April of the present year. Between 1867 and 1873 the known part of the comet would bring it into close proximity to the planet Jupiter, the consequence being considerable perturbations in the elements of its orbit. When Dr. Tempel re-observed it on the present occasion he found it in a position closely agreeing with the one determined by the calculations based on the elements of its motion as observed in 1873 ; he describes it as faint and diffused with a granulated appearance about the centre, and 2′ in diameter.

The appearance of the third comet expected this year has been looked for with intense interest and eagerness, which finds a complete justification in the comet's extraordinary history. Biela's comet—the comet in question—was first observed in 1772, and returned with tolerable regularity at intervals of $6\frac{2}{3}$ years, and up to 1846 it generally presented the same appearance—an ill-defined irregular mass rather more luminous at its nucleus than at its borders. Astronomical observations in the last-mentioned year were interrupted both in England and America by a long-continued spell of cloudy weather, and when at last they could be renewed the comet was seen to have split into two; there were two distinct nuclei separated by an interval which, so far as could be judged by the observations on that occasion as well as on the occasion of the comet's re-appearance, seemed to be permanent. At its next appearance, which happened true to calculation in 1852, the separation of the comet was again observed, but in 1859, when it should have returned, it escaped observation altogether. In this circumstance taken alone there was nothing very extraordinary : in 1839 the comet had also not been detected, but that did not prevent its being again observed

at its succeeding visits of 1846 and 1852. When, however, in both 1866 and 1872, the years when the comet might again be expected, astronomers failed in recognising it, it was felt that there must be some other reason than mere imperfection of observation to account for its non-appearance. Suddenly on the night of the 26th–27th November of the last-named year, observers were surprised by an unexpected and copious shower of falling stars, the majority radiating apparently from the same point in the heavens: a phenomenon which seemed to indicate a common origin. Now it had for some time been known that certain streams of falling stars followed the track of different comets; more than that, it had been surmised that the thin tenuous matter of comets —so fine that stars could be distinguished shining through it— consisted of clouds of small grains or spores similar in size and constitution to those falling stars. Under the influence of this theory, Professor Klinkerfuess, of Göttingen, at once suspected that the earth had come into contact with Biela's comet; but as from the calculated position no observation of it could be possible in the northern hemisphere, he immediately telegraphed (in words almost classical among astronomers) to Mr. Pogson, the Astronomer Royal at Madras :—"Biela touched earth on the 27th; look for it in *Theta Centauri*." No sooner had Pogson directed his telescope to the point indicated, than he saw a comet; but was this the comet sought for? Only two nights were available to the observers at Madras for carrying on their observations, but they saw enough to satisfy themselves that the course of the body they were studying was not that which Biela's comet should have had; nay, more, its motion round the sun was in the opposite direction. Then arose the question, was this body one of the parts of Biela's comet turned out of its proper course by the attraction of the earth? This is the question which its re-appearance in 1879 may, it is hoped, help to solve, but up to the time of writing these lines no sign of the comet has been observed.

Of new comets in 1879 up to the present three have been discovered—the first by Mr. Lewis Swift at Rochester, New York, on the 16th June, and again observed by Professor Winnecke at Strasburg on the 21st June; the second by Dr. Palisa at Pola on the 21st August; and the third by Dr. Ernst Hartwig. Neither of these, so far as at present known, presents any feature of special interest.

A New Nebula.—In the early part of the year Dr. Tempel notified his discovery on the 14th March of a nebula in a part

of the heavens which had been often searched for such objects without success. He describes it as a double nebula with two small but distinct nuclei, distant from 15″ to 20″, and brighter and larger than the nebula known as Herschel II, 32, which is in its immediate vicinity. At first, knowing that no object of the kind was indicated in that spot on the charts, Dr. Tempel inclined to the belief that the body he had discovered was a comet, but as its place remained unchanged at a subsequent observation this supposition was no longer tenable. No information has as yet been made public, so far as can be ascertained, that this discovery of Dr. Tempel's has been verified by independent observers.

Calculation of the Solar Parallax.—In the "Companion to the British Almanac" for 1878, an account is given of the expedition of Mr. Gill to the island of Ascension in order to determine the distance of the sun from the earth by means of observations of the planet Mars. Since that time Mr. Gill has succeeded Mr. Stone in the direction of the Royal Observatory at the Cape of Good Hope, and writing from thence to the Royal Astronomical Society, he states that the reduction of his observations at Ascension are sufficiently completed to indicate the results of his calculations. These results, though obtained from various combinations of the observations, differ very little one from the other, and he deduces 8″·78 as the definite figure angle for the solar parallax. Interpreting this by the aid of Colonel Clarke's last determination of the earth's semi-diameter at the Equator, we get the mean distance of the earth from the sun to be 93,101,000 miles. This distance thus obtained by Mr. Gill is by nearly 300,000 miles smaller than that deduced last year by the Astronomer Royal in his first report on the results of the Transit of Venus observations in 1874. In a supplementary report on the same observations Sir George Airy states that the revision of the calculations makes the parallax 8″·83, corresponding to a mean distance of the sun from the earth of 92,620,000 miles. The latter result was much closer to what was generally expected it would be from the calculations of Leverrier and Newcomb.

Geography.

The year 1879 will probably be memorable for the large number of expeditions undertaken with the object of geographical exploration, and, strange to say, only a few of these expeditions have been sent out from this country. Sweden, Ger-

many, Belgium, Prussia, Portugal, and America can this year all point with pride to the ardour and devotion of their countrymen in the cause of geographical research. There are, it is true, no great discoveries to record similar to those of the sources of the Nile and the Congo, but geographical science is not on that account the less indebted to the noble band of explorers who go forth into the wilderness to do her work; and taken in the aggregate that work in the course of the year may well be called stupendous. Maps have been altered and empty spaces in them filled in; rivers have had their courses laid down correctly; the heights of mountains have been ascertained; and what is more valuable than all, routes have been opened up to trade and to civilisation.

Arctic Expeditions.—In our account of the expeditions to the North Pole last year, we left the *Willem Barentz* and her crew of Netherlanders at Novaya Zemlya in the middle of August. We have now to record her return to Amsterdam "all well" in October, 1878. So successful was the work of this expedition, and so rich in scientific results, that the Dutch Central Committee for Arctic Exploration determined to send out the same ship again this year, and raised a subscription of 50,000 florins for the purpose. She sailed from Amsterdam on the 3rd June, 1879, equipped with all necessaries for ten months. From the latest accounts we learn that the expedition returned to Hammerfest on the 24th September, after succeeding in reaching Franz Josef Land.

The other Arctic Expedition, to which reference was made in the account of geographical discovery for the year 1877–1878, was that undertaken by Professor Nordenskjöld with the object of making the passage along the northern coast of Europe and Asia and through Behring's Strait into the Pacific Ocean. This expedition left Gothenburg in Sweden on the 4th July, and Tromsöe in Norway on the 15th July, 1878; it consisted of a larger ship, the *Vega*, carrying an able scientific staff, under the command of a lieutenant in the Swedish Navy, and accompanied by a smaller steamer the *Lena*, which was only to go part of the way. Doubling the North Cape the ships made a short stay at Vaigatz Island, where good work was done by the naturalists on the fauna of the sea and the flora of the land. They then passed through the straits which separate the Novaya Zemlya group of islands from the mainland into the Kara Sea which they traversed to the mouth of the Yenissej River. Leaving the harbour there

(which in compliment to Mr. Dickson, of Gothenburg, they named Port Dickson) on the 10th August, they rounded Cape Severo, or Tchelyuskin, on the 19th, and reached the mouth of the Lena on the 27th August. Here the smaller ship, the *Lena*, parted company with her consort to ascend the river of the same name, while the *Vega* alone turned northwards to sight the islands of New Siberia, where she was stopped by the ice. Again sailing in a south-easterly direction, the expedition picked its way through the ice along the coast of Siberia, until on reaching Koljutschin Bay, on the 27th September, the ice prevented all further progress. No change for the better took place in the condition of the ice; on the contrary, a succession of northerly winds drove masses of drift ice into the bay, and heaped them up along the shore. Here, then, Nordenskjöld and his companions were compelled to pass the winter, though so closely had they calculated their time, that had they been able to reach the bay two days earlier they could probably have escaped the ice and reached the Pacific before the winter set in. The place where they were thus imprisoned for 264 days is only a few days' sail from Cape East in Behring's Strait, the most easterly point of the Asiatic continent, and lies in about 68° N. lat., and 163° E. long.; game was plentiful, and occupations were many and close at hand; over only a mile of frozen sea was the Tschutschi Peninsula, where there were villages of the Tchuktchi tribe, described by the explorers as a friendly, pleasant people, so that they were not entirely deprived of human society during all the long winter days. At length, on the 18th July, 1879, the ice broke up sufficiently for the *Vega* to move, and a couple of days later she passed through Behring's Strait and entered St. Lawrence Bay. In this neighbourhood some of Professor Nordenskjöld's most successful dredging operations were carried out, and it is expected that the collection he brings home will be especially rich in natural history specimens taken from the sea-bottom where the currents meet from the Arctic and Pacific Oceans. He crossed to Port Clarence on the American shore, and visited St. Lawrence Island and Behring's Island off the east coast of Kamschatka, receiving at the latter place his first news from Europe. Here, too, the naturalists of the expedition made the most interesting discovery of the fossil remains of the gigantic marine animal *Rhytina Stelleri*, which like the Dodo of the islands in the Indian Ocean, and the Great Auk of New Zealand, became extinct within

a comparatively recent period. This animal, a species of *Sirenia*, (to which family the Dugong and Manatee belong) was discovered at Behring's Island in the middle of last century; coming into contact with man seems to have been fatal to it, for the last live specimen was seen in the year 1768. On 19th of August the *Vega* left the island, and, after encountering a severe gale, anchored at Yokohama, in Japan, on the 2nd of September, where, according to the latest accounts, she was to spend some time. The expedition may be accounted a highly successful one, and to reflect credit on every one who took part in it. Not the least of the results, according to Professor Nordenskjöld, is the opening up of trading prospects between Japan and the interior of Siberia; he considers that a little experience will render the voyage from the former country to the mouth of the Lena perfectly safe.

In America, Mr. Gordon Bennett, to whose initiative and liberality Stanley's expedition into South Africa is greatly due, has determined to take up the cause of Arctic exploration. He has bought the steamer *Pandora*, which it will be recollected, under the command of Captain Allan Young, bore an independent part in the expedition of the *Alert* and the *Discovery*, and has had her refitted in the Thames; she was there rechristened the *Jeanette* and sent to San Francisco, where she has been fully equipped for her proposed service. On the 8th July, 1879, she sailed for the Arctic Sea, *viâ* Behring's Strait, under the command of Lieutenant De Long, and on the 2nd of August was reported to have arrived at Onalaska; the detailed plans of the expedition are purposely kept secret.

No expedition for the exploration of the North Polar regions has left our own shores during this year, but Commander Cheyne, R.N., is busy in organising one which, according to present intention, will start in the month of May, 1880. So far, he has been successful in forming an influential central committee for "The New British Arctic Expedition," to which 49 provincial committees are affiliated, and subscriptions in aid of the expenses, which necessarily must be large, are coming in freely. Balloons will form an important part of the equipment of the proposed expedition, as ballooning is, in Commander Cheyne's opinion, the only practicable method of reaching the Pole. Each balloon is to carry a sledge party, with stores and provisions for 51 days, and will start from the ship's winter quarters in the early part of June; the ascent will be made on

the curve of a roughly ascertained wind circle, a continuation of which curve will carry the explorers to the Pole ; but should the curve deflect, another current can, according to Cheyne's theory, be struck, by rising to the requisite altitude. It will be seen that the success of such a scheme depends on the realisation of conditions which we are not yet, perhaps, in a position to ensure. Experiments to enable us to obtain an accurate knowledge of those conditions must, at all events, be carried out on a large scale, and can only be trustworthy when they are undertaken within the polar circle.

Explorations of Central Africa from the East Coast.—The expedition sent out last year under the auspices of the Committee of the African Exploration Fund of the Royal Geographical Society has met with a sudden and melancholy check. On the 14th November, 1878, the commander of this expedition, Mr. Keith Johnston, accompanied by Mr. Joseph Thomson, as geologist and naturalist, left this country for Zanzibar *en route* to Lake Nyassa, with the ulterior object of clearing up the geography of that part of the African continent which lies between that lake and Lake Tanganyika. On reaching Dar-es-Salaam they spent some months in making a preliminary trip to the Usambara Hills, and in obtaining information regarding the routes from that place to the north end of Lake Nyassa ; finally, having completed all their preparations, they started for the interior on the 14th of May, with a company of 138 (porters) carefully selected, with the aid of Chuma, Livingstone's old servant, who himself accompanied the expedition. Scarcely, however, had they penetrated to a distance of about 130 miles than Mr. Keith Johnston, the leader of the party, was attacked with dysentery, and succumbed to the disease on the 28th June, at a place called Berobero ; this sad event necessarily prevented for a time the explorers from continuing their journey, though according to latest accounts the expedition has again been resumed under the charge of Mr. Thomson, the only European who accompanied Mr. Johnston.

Previous to the determination of our Royal Geographical Society to send out the Keith Johnston Expedition, the Abbé Debaize had received from the French Government a subvention of 100,000 francs for the purpose of African exploration. The Abbé left Marseilles on the 20th of April, 1878, for Zanzibar, where he spent some time to make complete preparations for his journey across the continent, which he expected would

occupy him three years. We next hear of his having reached Taboro in Unyamwezi, and on the 20th March, 1879, he was at Igonda, seven days' journey from Ujiji. The last letter received from him was written on the 2nd April, from the latter place: in it he expresses his intention of taking all his porters and merchandise by water, to the north end of Lake Tanganyika, where he will establish a depôt, and he then hopes to be able to explore the hitherto quite unknown country between the lakes Albert Nyanza and Tanganyika.

Still earlier in 1878, the Belgians, under the auspices of their king, who has always taken a lively interest in geographical research, also sent out an expedition to Zanzibar, with the object of forming an exploring colony in the heart of the African continent. Soon after their arrival on the East Coast two of the leaders of the expedition, Dr. Maes and Captain Crespel, died, but the expedition was continued under the leadership of M. Camier, to whose assistance Lieutenant Wautier was sent out by the Society at home. In September of the same year the expedition was joined by M. Greffulhe and Dr. Dutrieux, but soon afterwards M. Wautier also fell a victim to dysentery, the malady so fatal to Europeans. King Leopold, not disheartened by these disasters, has started a second expedition under MM. Popelin and Van den Heuvel, who arrived at Zanzibar at the end of May, and met there Dr. Dutalis, who had also been sent to join the party. Meanwhile letters had been received under date of 16th March, from MM. Camier and Dutrieux, who announced their arrival at Taboro, in Unyanyembe, and their intention to remain there till the end of the rainy season. One of the most interesting points in connection with the labours of this expedition is the circumstance that the Belgian Association has taken up the question of taming and training the African elephant, and using it for the purposes of exploration. As a preliminary step, a few Indian elephants have been landed at Dar-es-Salaam, and if they are found to bear the change of climate, their services will probably be utilised in catching and taming the wild animal of the country. The Belgian Association also appears to have secured the services of Mr. H. M. Stanley, who in the beginning of the year 1879 was heard of in Zanzibar, busily occupied in engaging porters for a journey into the interior of the continent, though a rumour was current that that journey would commence from the West Coast. This is corroborated by an announcement from Sierra Leone, that

Stanley had arrived there on the 24th July, and had left on the 1st August with his Zanzibar followers for Mboma on the Congo.

Explorations from the West Coast.—Major Serpa Pinto leaving Benguela towards the end of 1877, has made a journey across the African continent, which to a considerable extent corresponds with that which rendered Livingstone's name famous as an explorer. Starting from Bihé, which lies at the back of the Portuguese settlements on the West Coast, he struck the upper waters of the Zambesi, and followed that river along a considerable portion of its course. He explored the River Cuando, a large affluent of the Zambesi, and discovered the source of the Cubango, which as he states ultimately loses itself in the sands. Afterwards, turning off from the river district and going south and east, Major Pinto crossed the Kalahari Desert and ultimately reached Pretoria, the capital of our newly acquired territory the Transvaal, from thence he was forwarded to Durban, in Natal, at the commencement of this year, and so home. He seems to have suffered the usual hardships of the African traveller: he was deserted by his followers, and had to fight his way through hostile tribes; his provisions often ran short, and he experienced great danger in descending cataracts. Though his expedition was scarcely on the same scale as that of Stanley down the Congo, he appears to have endured a proportionate amount of danger and difficulty. The work he has done, however, has placed him in a high rank among African explorers, and his reception since his return, both in his own country and in England, will go far to compensate him for the perils and hardships of his journey.

In the beginning of this year M. Savorgnan de Brazza and Dr. Ballay arrived in Paris after a three years' exploration of the Ogové district. Before Stanley had succeeded in proving the identity of the Lualaba with the Congo it had been supposed by many that the Ogové would turn out to be the channel by which the former river found its way into the sea, and even after Stanley's discovery it was held that the Ogové was in reality one of the outlets of the Congo. MM. de Brazza and Ballay found that the Ogové rises in a mountain range on this side of the Congo, and is formed by a number of rivulets descending from the heights of this range. They are led to the conclusion that a large part of the water filling the bed of the Ogové issues by subterranean infiltration from the Congo basin, but were unable to verify this assumption on account of the hostility of the natives

inhabiting the region. M. de Brazza, however, subsequently crossed the watershed and came upon the Alima, a large river flowing eastwards, which he believed to be a tributary of the Congo.

Another Frenchman, M. Paul Soleillet, already known as an explorer of the Great Sahara, in the beginning of 1878 conducted an expedition from St. Louis in Senegambia, with the object of opening up a trade route between the West Coast and Algeria by way of In Calah and Timbuctoo. By the end of the year he had reached Kouniakary, in Segou, but here his progress seems to have been cut short; he was stopped by Ahmadu, the Emperor of Segou, and compelled to return to St. Louis. His expedition, though barren of immediate result, is of value in having enabled him to bring back a mass of information bearing on the plan which the French entertain of connecting their colonies in the north and west of Africa by a railway passing through the Great Sahara and Timbuctoo.

Penetration into Central Africa from the North.—The most important of the expeditions for African exploration, promoted by the Germans, has up to the present not been the success that might have been expected. It was started with the object of reaching the sources of the Congo by way of Wadai, under the leadership of the veteran African explorer, Dr. Gerhard Rohlfs. Accompanied by two Austrian gentlemen, Baron von Csillagh and Dr. Strecker, Herr Rohlfs left Europe in October of 1878, and spent the following Christmas in Tripolis. On reaching Murzuk Baron von Csillagh left the expedition and returned to Europe; further on, at Djalo, the party had much to endure from the fanaticism of the natives, and were unable to obtain guides across the Wadai Desert on account of the unfriendliness of the Government of Bengasi. This prolonged obstruction seems to have completely disheartened Dr. Rohlfs: on the 21st June he wrote from Bengasi, resigning the conduct of the expedition on account of the length of time it would be likely to last—time which at his age was of great value—and proposing Dr. Strecker as his successor. By the latest news, however, we learn that Dr. Rohlfs had been induced to withdraw his resignation. He had been able to overcome his difficulties, and had left Bengasi on the 4th July with a prospect of reaching Abish, the chief town of Wadai, about the middle of August.

Under the auspices of the German African Society, two well-known travellers start for the Dark Continent in the autumn of

1879. Dr. W. Junker is to penetrate through the Soudan to Monbutta, and Dr. Oscar Lenz goes to Morocco to superintend a sort of school or training institution for African explorers, which the society desires to establish there.

Exploration of Central Asia.—The unknown regions of the interior of the Asiatic continent seem to have peculiar fascinations (to a certain extent, no doubt, due to political reasons) for Russian explorers. The best known of these, Colonel Prevejalsky, started in the spring from St. Petersburg, by way of Orenburg, Omsk, and Semipalatinsk, to visit the Chinese frontier, and thence he goes to Hami, Hansu, and Lassa. From Lassa he intends to reach the Himalaya by the Brahmapootra, and in returning he will visit Khotan and Kashgar. His journey is to last two years. The latest information received from him represents him as having accomplished about a third of his journey to the Himalaya, and as being well on his way to Lassa.

In a paper read in the Geographical Section of the British Association meeting at Sheffield, in August last, Mr. C. E. Black described the exploration of the easternmost portion of the Brahmapootra River, made by one of the native officers attached to the Indian Survey Department. He appears to have taken up the eastward course of the great Sanpee River at Chetang below Lassa, to which place it had been traced from its source by the famous Indian explorer, Pundit Nani Singh. The most remarkable feature of this new exploration is the discovery of a huge bend to the north in the Sanpee, before it commences its south-eastern course into Assam. This bend, which was previously unknown, leaves room for a northern feeder of the Subansiri, and accounts for the large bulk of the latter river. This important exploration was made as far back as 1877, but the present is the first occasion of its being made known in Europe.

Chemistry.

Compound Nature of the Elements.—For some time past the opinion has been gaining ground among philosophers, that many of the sixty odd bodies which we have been taught to consider elements are in reality compound bodies. As chemical research has been pushed further and further, the primary and indecomposable character of these bodies has been rendered more and more doubtful. Mr. Norman Lockyer, whose researches in solar physics are so well known, has for the last four years been

engaged in the preparation of a map of a particular region of the spectra of the metallic elements for comparison with the map of the same region of the solar spectrum. For this purpose he had 2,000 photographs taken of spectra of all the various metallic elements, and more than 100,000 eye observations were made. The results of these investigations were laid before the Royal Society by Mr. Lockyer in a paper read at the meeting on the 12th December, 1878, and these results, he thinks, indicate the compound nature of the chemical elements.

To give a complete description of the experiments on which Mr. Lockyer bases his theory, and of the arguments by which he supports it, is certainly beyond the province of this article, even if it were possible to make them comprehensible to readers who have but an outline knowledge of spectroscopic research. Generally and briefly stated, his arguments are as follows :—(1.) The hotter a star the more simple is its spectrum ; for instance, Sirius, which we believe to be one of the hottest stars, gives a spectrum showing only thick hydrogen lines, or a few thin lines characteristic of metals of low atomic weight. (2.) In the sun, whose temperature is much lower, the spectrum is much more complicated, and indicates the presence of a much larger number of the metallic elements. (3.) Spectroscopic examination of the metals in the voltaic arc and other conditions of artificial heat, shows that the spectrum of the same body varies with its temperature ; further, that as different bodies are raised to the same high temperature, the same lines are visible in their spectra.

Chemists naturally will be slow to accept this theory—one which would revolutionise the whole of chemical philosophy—until proof of its correctness can be furnished by methods and appliances to which they are more accustomed. Even if the discovery be capable of verification, it will be seen that it is as yet only in the hands of the physicists ; and properly speaking, and judging it only by the way in which it was made, it is not a chemical discovery at all. If it can be verified by others, it must be pronounced to be a discovery of unparalleled importance ; in the meantime both chemists and physicists may possibly trace the phenomena to their true cause whether that be in accordance with Lockyer's theory or not. As we learn, from a note which he communicated to the Chemical Section of the British Association in August last, Mr. Lockyer is still prosecuting inquiries in the same direction, and has obtained results which only confirm his previous experiments.

Decomposition of Chlorine.—But of more importance than results obtained by his own method to substantiate Lockyer's views, is an independent discovery which comes to us from Zürich. Professor Victor Meyer, of the Polytechnikum in that city, has devised a new and simple apparatus for determining vapour densities, and enabling the experimenter to work at high temperatures with far greater facility than by any method previously known. In conjunction with his brother, Herr C. Meyer, Professor V. Meyer made several experiments to obtain the vapour densities of some of the commoner elements, and among them that of chlorine, and they were surprised to find that in the case of this latter substance, when raised to a high temperature, the results were not in accordance with theory. They found that between the temperature of 600° and 1200°C., the density of chlorine gas diminished, until at the latter point it was only two-thirds as great as that at 600° and below, and no further alteration occurred on heating to nearly 1600°. Upon this the heated gas was passed into a fluid that absorbs chlorine, when a gas accumulated in the measuring tube that was not chlorine, but oxygen. Chlorine therefore is not an element, but the oxide of some new element which the discoverers propose to call *Murium*. This name for the hypothetical constituent of chlorine had already been suggested by Berzelius who, as well as Sir Humphrey Davy, suspected chlorine to be an oxygen compound.

New Metals.—The accumulating proofs, however, that the elements are in reality compound bodies, has not prevented fresh ones from being added to the list. In samarskite, a mineral found in North Carolina, M. Delafontanie has discovered two new metals, to which he gives the names of *Philippium* and *Decipium;* they both belong to the cerium group, and like many other rare metals in that group have not been isolated. Erbium, a metal belonging to the same group, was discovered by Mosander in 1842, but its oxide, the earth erbine, has been found in the course of this year to contain also several other previously unknown metals; thus M. Marignac has discovered *Ytterbium*, M. Nilson *Scandium*, and M. Clève *Thulium* and *Holmium*. Considering, however, the great rarity of the mineral itself, and the extreme difficulty of separating the various earths or oxides from which the pure metals have not been isolated, it is possible that further investigation will reduce the number of elementary bodies which the cerium group of metals is now supposed to contain.

In the spring of this year a new metal, *Norwegium*, was detected by Dr. Tellef Dahl, in a sample of copper-nickel from Kragerö in Skjærgaarden. This metal the discoverer also succeeded in isolating; he describes the colour as white with a brownish cast, and in hardness he finds it to resemble copper.

New Metallurgical Processes.—Considerable interest has been excited in the north of England during the year, in some successful experiments with a new process, invented by Messrs. Thomas and Gilchrist, for producing good Bessemer steel from Cleveland pig-iron. Hitherto hæmatite iron ore alone, which is only obtainable in quantities in Cumberland and Spain, has been used for making Bessemer steel. Under the new process, irons which contain a high percentage of phosphorus, such as are got in the Cleveland district, can be employed with success. The Thomas and Gilchrist process consists in lining the Bessemer converter with a composition of limestone and silicate of soda, and by this means the steel is said to be entirely dephosphorised. A similar process, the invention of Mr. Riley, has been tried with good results at Sheffield; in this case the lining consists of burnt limestone mixed with petroleum. If these new processes can be made to pay commercially, the advantages to the iron-working districts of North and South Yorkshire will be considerable.

Another new process for reducing certain mineral ores has been introduced to public notice in the course of the year. It is the invention of Mr. Hollway, and will probably before long be worked on a commercial scale, as a company is being formed to take it up. Like the Bessemer process for the conversion of iron into steel, Mr. Hollway utilizes the heat obtained by the rapid oxidation of the combustible material in the ores themselves, thus rendering the operation of smelting self-supporting. Essentially, the invention consists in forcing a current of air through the molten charge—which may be composed partly of sulphides and partly of siliceous ores—by which means it is rapidly and effectively oxidised, no extraneous fuel being required after the furnace has been once started. All the carbonaceous fuel necessary is a little coke to start the furnace, which stands in the same relative position to the ores as wood does to the coal in an ordinary fire. It will thus be seen that nearly all the heat required is contained in the minerals themselves, and this will render Hollway's ingenious process of great value to countries where these heat-bearing minerals

abound, and where carbonaceous fuel is correspondingly scarce. Another advantage of the process is its economy; it is claimed for it that very little of the reducible metal is lost in the slag, while by a special condensing arrangement the whole of the crude sulphur and other sublimates is recovered.

Geology and Palæontology.

Discovery of Silurian Rocks below the Gault in Hertfordshire.—It will perhaps be within the recollection of the readers of the "Companion to the British Almanac" for 1878, that two years ago, as a result of the boring for a well at Messrs. Meux's brewery, the Devonian rocks were proved to lie immediately beneath the Lower Greensand of the London basin. A similar discovery has now been made in Hertfordshire. Important borings and extensions have been for some time carried on by the New River Company for the purpose of obtaining a larger supply of pure water from the chalk. At Turnford, near Cheshunt, and at Ware, near Hertford, borings have thus been undertaken, and the expectations of the company were realised by their getting abundant supplies of water from the deep wells in the chalk at both of those places, and more especially at the former. Knowing, however, that the Lower Greensand is a source of unusually pure water in considerable quantities, the New River Company have, with great public spirit, pushed these borings still further, for they were aware that geologists have long considered the presence of the Lower Greensand beneath the Gault in Hertfordshire to be problematical. Unfortunately for the enterprise of the company, the anticipations of the geologists proved to be correct. At a depth of 800 feet, and immediately beneath the Gault, the boring tool brought up specimens of rock which Mr. Etheridge pronounced to belong to one of the oldest formations in the British Islands. On the land lying immediately below the Gault bed of Hertfordshire, therefore all the older strata, the Devonian, Carboniferous, and Oolite, have either never been deposited or have been completely denuded, and we now find there the Wenlock Shale of the Upper Silurian formation, richly fossiliferous, and dipping at an angle of 40°; in what direction the dip takes place is not yet known.

A New Underground Lake.—Near Tlemcen in Algeria some miners, in the course of blasting operations undertaken during the past summer, came upon the entrance to a large cave, the

floor of which was covered with water. By the help of a hastily constructed raft the workmen sailed along this subterranean stream until at a distance of between 60 and 70 yards they emerged on a large lake of clear water lying in an immense cavern, which they estimated to be over a mile and a half long by a mile wide. At the extreme end of the lake they found a huge fissure into which the water flowed quietly, and which appeared to be the entrance to a channel extending in a southerly direction. In connection with this discovery it should be noticed that the River Tafna has long been known to flow out of a similar fissure which has hitherto baffled exploration, and which, it is now supposed, may be connected with this newly discovered lake. The fish brought out of the cavern by the workmen were found to be totally blind.

Prehistoric Caves in Moravia.—"Cave hunting" has become a passion with many of our leading geologists, and the discovery of the traces of prehistoric man, in a part of Europe where none have hitherto been known to exist, will rather add to than diminish their interest in the subject. In two caves lately discovered in a hill near Stramberg, in Moravia, the exploration which has been carried on in a very careful and systematic manner, has brought to light a large number of remains of the highest scientific interest. The human occupants of the first of these caves seem to have lived in the oldest stone age or palæolithic period; their implements and tools, relics of which have been found, are all of stone, and are accompanied by bones of the cave bear, the mammoth, the rhinoceros, the cave ox, and other antediluvian animals. In the second cave, the Dwarf's Cave as it is called on the spot, remains of the same kinds of animals have been found; but the men who occupied it must have lived at a later era, and have been acquainted, to some extent, with the use of metals. The articles obtained in this cave include tools of horn and bone showing traces of artificial work, arrow-heads and knives of bronze, as well as some fragments of pottery covered with characteristic ornaments.

Palæontological Discoveries.—At the end of last year Professor O. C. Marsh described in the "American Journal of Science and Arts" a new species of gigantic dinosaurian animals which he has discovered in the Upper Jurassic formation of the Rocky Mountains. To this species belongs the huge *Titanosaurus*, mentioned in last year's "Companion;" but a still larger reptile has now been discovered, the *Atlantosaurus immanis*, which

must have been over 100 feet in length. With these monsters occur some of the most diminutive dinosaurs yet found, one, the *Nanosaurus*, not being larger than a cat.

In some rocks of Purbeck age, Professor Owen has found the fossil remains of diminutive crocodilian reptiles which cannot have been more than 18 inches in length; he has given it the name of *Theriosuchus pusillus*. The same distinguished palæontologist has described under the name of *Titanosuchus ferox* another gigantic reptile, belonging to the same order of Theriodontia, whose fossil remains were found in the Triassic beds of South Africa; from the dental characteristics this was probably an animal of a fiercely carnivorous type.

Mr. Theobald has discovered in the Siwaliks of the Punjab the upper jaw and palate of a large anthropoid ape, which must have belonged to a creature intermediate in size between the orang and the gorilla. Judging from the teeth of this fossil, the chimpanzee of living apes comes nearest to it in character. The specimen is of great interest as being the first trace of the larger anthropoid apes found in India, and also on account of its resemblance to the great apes of western Africa.

Physics.

The invention of the telephone and phonograph, and the threatened subjugation of gas illumination by the electric light will no doubt cause a record of physical discovery during the year to be looked for with interest. As a fact it would require many pages to relate all that has been promised us, and done for us, during the year in this branch of science by the inventors of all nations.

Radiant Matter.—Mr. Crookes's remarkable researches in the region of molecular physics open up a new field of scientific inquiry, which even in his own hands have already led to unexpected results. The phenomena presented by vacuum tubes when the spark from an induction coil is passed through them have been for some years known and investigated. But by increasing the exhaustion in the tubes, Mr. Crookes has come upon a distinct order of appearances by which he thinks he has proved the existence of a fourth or ultra-gaseous state of matter. When the electric spark passes through an ordinary vacuum tube a dark space is observed round the negative pole; but as the gas in the tube is more and more rarefied this dark space is removed further from the pole, and finally a phosphorescent light appears

on the farthest part of the tube away from the pole. This phosphorescent light is not the same as that observed in common vacuum tubes; such tubes give different spectra according to the nature of the residual gas, while the fluorescence in Crookes's highly rarefied media gives a continuous spectrum of the same kind whatever be the nature of the gas, and modified only according to the substance of which the tube is composed, or rather on which the stream of electrified molecules is made to impinge.

To explain these phenomena Mr. Crookes falls back on what is generally called the kinetic theory of the constitution of gases. According to this theory the infinitesimally small molecules of which a gas consists are continually moving in all directions with intense velocity, and are therefore at every instant coming into contact with one another; the molecules move in straight lines, but as the collisions succeed each other with excessive rapidity, their free paths between those collisions must be exceedingly small. At a very high degree of exhaustion the space for a molecule to move in becomes much more extensive, and its mean free path is much larger. Under the influence of the electric current a stream of molecules is made to move comparatively a long distance in rectilinear paths, until impinging on an obstacle their energy is checked and manifests itself as light and heat. The experiments which Mr. Crookes has devised to illustrate and fortify his argument are very striking and effective, the more so as, with an ingenuity all his own, he can make them visible to a large audience. In this way he shows how his stream of molecules will produce a shadow, and set a small wheel in motion by impinging on its vanes. More interesting still are the experiments by which he proves that the stream of molecules from the electrified surface is highly sensitive to magnetic influence, and may be deflected out of its course by means of a magnet.

In 1819 Faraday expressed his belief that matter was capable of existing not only in the three well-known—solid, fluid, and gaseous—forms, but also in a fourth one, ultra-gaseous, or as he preferred to call it, a radiant state. He pointed out that as we ascend from the solid to the fluid, and thence to the gaseous condition, physical properties diminish in number and variety. Solids on being converted into fluids lose their hardness, and to a certain extent their distinction of colour and opacity, and this is still more the case when the fluids are further converted into gases. As matter ascends in the scale of forms we observe a

gradual resignation of the properties it possesses. Now, if we suppose it to be capable of a change, as far above vaporisation as that is above fluidity, to a state when the simplification of its properties becomes still more perfect, Faraday thought that we could form a conception of the condition which he called radiant matter. "In these highly exhausted tubes," says Mr. Crookes, "the molecules of the gaseous residue are able to dart across the tube with comparatively few collisions, and, radiating from the pole with enormous velocity, they assume properties so novel and characteristic as to entirely justify the application of the term borrowed from Faraday, that of *Radiant Matter*."

The Electric Light.—At the time when Mr. Brittle's article on electric lighting was published in the "Companion to the British Almanac" of 1879, great expectations were generally entertained of the possibilities of electricity as an illuminating agent. Since that time, however, but little advance has been made in the way of making the electric light available for general purposes. Many experiments have been tried, with varying success, as to its use on what may perhaps be called a small scale. Holborn Viaduct and the Thames Embankment have been lighted by it; it was tried in Billingsgate Market and in the Albert Hall, in the front of the Gaiety Theatre, and in the offices of the *Times*. In Paris it has also been used to light up the Place de l'Opera and several of the railway termini, and generally thereon used on a limited scale. For purposes such as these it has been found to succeed, but great differences of opinion exist as to the cost of introducing and working it. For exciting the current various forms of dynamo-electric machines have been tried—in this country, the Gramme, the Lontin, and the Siemens machines; in America, the Wallace-Farmer and Brush machines; for producing the light we have had the Jablochkoff, the Werdermann, and the Rapieff burners. Another use for the electric light has been found by Mr. Van der Weyde, who, by means of a special arrangement of reflectors and opal glasses, has adapted it for photographic purposes.

Still, the great hindrance to the employment of the electric light for general illumination remains—the inventors have been unable to succeed in subdividing the current indefinitely. At the end of last year we were indeed threatened with what was being done in America by Mr. Edison, who, it was said, had not only invented a lamp which would quite supersede the old carbon burners, but had also discovered a means of keeping 20,000 lights burning from one electrical station with a 600 horse-power

engine. Notwithstanding the warnings of scientific men, who were content to wait until they saw these statements practically verified, a panic ensued among the holders of gas shares; gas, it was said, must lose its value as an illuminating agent in competition with the electric current. Fortunately for these people, though not perhaps for general comfort, Edison's light is now known to be a failure. His idea was to get a light from the incandescence of platinum heated by the electric current; but platinum melts at a temperature below that at which it attains the intensity of incandescence required, and the inventor has not succeeded in providing for the interruption of the current which this melting produces.

The Telephone.—Bell's telephone, as described by Mr. Dodd last year, has now been improved so far as to reproduce the speech in louder and more audible accents; the buzzing noise due to induction when currents are passing in neighbouring wires has also been got rid of. An instrument on quite a different principle has, however, been invented by Mr. Edison, which is said to be free from the defects of Bell's telephone. Accident led Mr. Edison to notice that when a slip of paper, moistened with a chemical solution, is drawn between two metallic surfaces it slides much more easily when an electric current is passing through the circuit. Taking advantage of this principle he has constructed a telephonic receiver, the sounds from which can be heard in any part of a large room. In the latest form of the instrument he replaces the slip of paper by a revolving chalk cylinder, impregnated with sulphate of soda or other suitable solution, and kept moist on the surface. Against this cylinder presses a platinum pointed spring, whose motion is communicated to a diaphragm of mica. By the vibration of the diaphragm the sounds spoken into the telephone at one end of the circuit are reproduced in the receiver at the other. Both Bell's improved telephone, and the new invention of Edison are shortly to be worked commercially in the city of London.

The Induction Balance.—Professor Hughes has applied the principle of his microphone, which was also described in last year's "Companion," in the construction of an apparatus which he calls the *Induction Balance.* To give an intelligible description of this instrument would be impossible within the limits of this article, but its object, briefly stated, is to measure the differences in the molecular constitution of metallic bodies. It appears to be extraordinarily sensitive; it will detect a difference

in weight of two perfectly new shillings quite inappreciable by any ordinary balance; a milligramme of copper on an iron wire finer than a human hair has been detected, and its exact value ascertained by this delicate instrument. All the indications of the apparatus are given audibly by means of a specially devised addition to the instrument, which Mr. Hughes has christened the *Sonometer*. Two gold sovereigns of exactly equal weight and value being placed on opposite sides of the instrument will occasion no disturbance, but if one of them weighs more or less than the other in the slightest degree, or if there be the least difference in the alloy, the fact is at once made known by a clear loud tone in the sonometer. Professor Hughes states that he has been able to appreciate the difference of temperature in a coin caused by simply breathing on it or holding it for an instant between the fingers.

Dr. B. W. Richardson has also applied the part of the instrument called the sonometer to medical purposes. He has constructed an *Audiometer* for discovering differences in the power of hearing, and a *Sphygmophone* in which the sounds of the pulse are made audible. With both of these instruments he gets excellent results.

Biology.

A Remarkable Crustacean.—Professor Milne-Edwards, in a recent note to the French Academy, describes an extraordinary crustacean which has been dredged up from the Atlantic on the north coast of Yucatan from a depth of 1,500 fathoms. He pronounces it to be a type of a new family of the *Isopoda* (of which order the common woodlouse is a familiar example), and has given it the name of *Bathynomus giganticus*, for it measures no less than 9 inches by 4. Its most remarkable feature is the complicated respiratory apparatus; this consists of a numerous series of branchiæ in the form of tufts placed between the false abdominal claws, each blade of which, examined in the microscope, is seen to be a tube covered with very fine hairs. This abnormally extensive respiratory organ is probably necessitated by the conditions of life at such a great depth, but it was hardly to be expected that in a region so dark the animal would require the very well-developed eyes that it possesses. M. Milne-Edwards has found each of the eyes to comprise 4,000 facets.

Animal Substances found in Plants.—Some time ago Professor Nägeli of Munich discovered in the yeast fungus substances usually supposed to be confined to animals, and Mr. Sydney

Vines has now succeeded in obtaining similar results from one of the higher flowering plants. He found an extract in a solution of common salt of the seeds of the blue lupin (*Lupinus varius*), to contain the proteids belonging to the group of globulins, and hitherto known only to occur to animals. One of them is *myosin*, a constituent of dead muscle, and the other is *vitellin*, a constituent of the yolk of egg. Both vegetable vitellin and vegetable myosin were found to have the same reactions as the animal substances of the same name. An aqueous extract of the same seeds contained another proteid compound, having all the properties of an easily decomposable peptone formed in the animal body by the action of the gastric or pancreatic juice on proteids.

Function of the Chlorophyll in Green Planaria.—Chlorophyll, the substance which gives the green colour to plants, is found also in animals belonging to very diverse groups. Among these are the green worms of the *Planaria* family, on which Mr. P. Geddes has been lately experimenting with a view of ascertaining what is the function of the chlorophyll which they contain. He seems to have succeeded in proving that the chlorophyll of the worms is physiologically identical with plant chlorophyll: that is, it has the power of decomposing carbonic acid. A number of these Planaria when placed in water and exposed to direct sunlight, gave off bubbles of gas containing from 40 to 55 per cent. of oxygen: enough to re-kindle a glowing taper; further experiments with potash showed that the gas contained scarcely any carbonic acid. The habits of the animals correspond with this; they are found on the sea-shore exposed fully to the sunlight, and covered with an inch or two of water. Light is so essential to their existence, that when kept in the dark they soon die. By treating the worms with alcohol, Mr. Geddes dissolved out the chlorophyll which they contained, and on adding iodine to an aqueous extract of the bleached and coagulated residue, he obtained the blue colour, disappearing by heat, and appearing again on cooling, which is so characteristic of the distinctly vegetable substance, starch. The physiological processes of these animals appear to produce not only chlorophyll, but starch, both of which are products of the action of vegetable life. The whole investigation of Geddes shows how nearly the chemical processes in some kinds of animals approach to those of plants. As he himself says:—"The *Drosera* and *Dionea* have received the name of Carnivorous Plants; with equal reason these Planarians may be called Vegetating Animals."

J. F. Iselin.

THE MUSIC OF THE YEAR 1879.

MOVEMENT in the world of music, as in every other art, must be judged rather by general evidences of progress or retrogression than by any particular and specific achievements, for just as a few great pictures which have a constant crowd of admirers at Burlington House form no guarantee of the general excellence of the exhibition of the year, or of the character of the average work of our painters, so the success of a new composition here and there, even when it is really excellent, may only serve to show that the general standard of the year has been falling rather than rising. In England, during 1879, the novelties in any branch of the art have, unfortunately, been few and far between, and we are thus compelled to look for the indications which any marked change of the public taste, or any movement in the way of musical education, may afford to guide us in our endeavour to put an approximate value upon the work of the twelve months. Looked at thus broadly, it will be found that the year will bear inspection, and that its movement, where any has taken place, has been in the right direction.

Taking first the educational work of the year, we find that the Government has given a decided proof of its desire to promote the instruction of the people in sight-singing by authorising Dr. John Hullah, Her Majesty's Inspector of the Training Colleges in Music, to proceed to the Continent to report as to the system best calculated to secure the desired result. Dr. Hullah, whose name has been connected with popular musical education in England since the days when, under the sanction of the Committee of Council, he commenced his sight-singing classes on the Wilhem method, with what is technically known as the Old Notation and the fixed Do, is understood to be in favour of the Dutch plan of teaching, which is based on the accepted staff notation with the use of numbers for the purposes of Sol-faing. The main point is, however, that some definite musical instruction shall be given in our elementary schools as a condition for the receipt of the grant already paid for singing by ear, and, as Lord George Hamilton has practically pledged the Government to the adoption of this course, there is some ground to hope that good work will ultimately be accomplished. The examination in music, conducted by Dr. Hullah and his assistants in the training colleges, has already given an impetus to the musical educa-

tion of the pupil teachers, who will, on the conclusion of their training college course, become the masters and mistresses on whom the instruction of the children will depend, and if Dr. Hullah's suggestion for the extension to the schools of the inspection by competent musicians now practised in the colleges, referred to in the "Companion" for 1878, is carried out, it will be possible to secure results in music, as a condition of payment, which have long been obtained in all other subjects. In the higher grades of musical education the Royal Academy and the South Kensington Training School still continue to work separately, although a proposal for the union of the two institutions has been under the discussion of a committee presided over by Prince Christian during the year. This committee consists almost exclusively of persons who are favourable to the amalgamation, but there is good reason to believe that the authorities of the Academy will maintain their policy of independence, and will refuse to consent to a union the benefits of which would, as far as can be seen, be entirely confined to the new institution. Why the directors of the Royal Academy should be solicited to consent to what would, as far as they are concerned, resolve itself into a scheme of absorption, it is difficult to see, and although theoretically it may be desirable that England should possess a national music school drawing a subsidy from the State, no logical reason can be given for the immolation of an Academy which has for a long period formed the only training school for the profession, and which has given us some of the most eminent of our native artists. As the five years for which many of the scholarships at South Kensington were endowed have nearly slipped away, the desire of the managers to secure permanence for the school by amalgamation with the Academy is perfectly intelligible, but this struggle for existence forms no adequate reason for the virtual extinction of an institution which, without the adventitious assistance accorded to its rival, has done real work under many disadvantages, and which has, in Dr. G. A. Macfarren, one of the ablest of English professors and composers for its head. If the proposed union ever takes place, there ought to be a far greater disposition than has hitherto been shown to give the Academy the advantages to which it is fairly entitled. As at present planned, the scheme would amount to little more than the incorporation of the Academy in the Kensington School, whose income would be materially increased by its endowments. Trinity College, London, is con-

tinuing its useful work, and has examined at various local centres 3,073 candidates, to whom certificates have been furnished. The importance of the stimulus thus given to musical education in public and private schools can scarcely be overestimated, while at the College House in London students have received regular instruction. The Council of the College of Organists have just decided to enlarge their operations, in order to supply courses of lectures and classes for students on a more extended scale than has hitherto been attempted, and thus another new centre for students will be available.

The last session of the Musical Association was fruitful in papers which came fairly within the scope of the Society—the investigation and discussion of subjects connected with the art and science of music. Among topics of the latter class, Mr. Shelford Bidwell, M.A., LL.B., gave an exhaustive account of the telephone, microphone, and phonograph; and Lord Rayleigh, F.R.S., described a scheme, which he declared to be perfectly practicable, of determining absolute pitch by the notes of a harmonium. Combining both the science and the art of music in a paper of exceptional interest, Mr. Ebenezer Prout, B.A., reviewed the growth of the modern orchestra during the past century, commencing with the opera orchestra directed by Hasse of Dresden in 1754, and leading up to the present band. The relative proportion of the strings to each other in Hasse's staff of players was nearly the same as at the present day, the main distinction lying in the preponderance of oboes and bassoons, which was, however, to be explained by the fact that the parts for these instruments were doubled. Mr. Prout then described the orchestra used by Haydn, so often called its "father;" the novel combinations of Mozart, especially seen in his treatment of small and incomplete orchestras; the grand effects produced by Beethoven, who perfected the orchestra by his plan of individualising every instrument in a way never before attempted by his predecessors, and by his original and vigorous treatment of the brass; the characteristic colouring of Mendelssohn, whose moderation in the use of the brass members of the orchestral family was commended to the notice of students; and, lastly, the strange effects of Wagner, often recalling the instrumentation of the 16th and 17th centuries, by the employment of families of instruments alone; while, by way of moral to his interesting tale, Mr. Prout condemned the modern tendency in favour of noise, and the too prevalent abuse of brass and per-

cussion instruments. Still more popular in style was Mr. G. A. Osborne's happy and genial reminiscence of Berlioz; and then, returning to graver matters, the President of the Association, the Rev. Sir F. A. Gore Ouseley, Bart., read a learned paper "On the early Italian and Spanish Treatises on Counterpoint and Harmony." The other subjects treated during the session were: "The Construction of Buildings, considered with reference to Sound," by Mr. C. G. Saunders; "Beats and Combination Tones," by Dr. W. Spottiswoode, President of the Royal Society; and "Form in Musical Composition," by Mr. C. E. Stephens, who avowed himself a champion of form, as exemplified in the works of Handel, Bach, Haydn, Mozart, and Beethoven, but which there had of late years been a disposition among certain of our continental neighbours to ignore. The element of discussion at the Association's meetings was more noticeable than in previous sessions, among the members taking part in the proceedings, in addition to the readers of papers, being Dr. Stainer, Dr. Bridge, Mr. W. Chappell, F.S.A., Mr. Otto Goldschmidt, Professor G. A. Macfarren, and Mr. Bosanquet. As it is only by free and full discussion that the true objects of the Association can be attained, it is satisfactory to find a greater disposition on the part of the most eminent of the members to contribute in this way to the business of the meetings. Mr. James Higgs, Mus. Bac. Oxon., has succeeded Mr. Charles K. Salaman as hon. secretary to the Association.

In the music of the church it cannot be said that there is any progress discernible; in fact, the activity which has been so noticeable of late years seems to have resulted in some respects in actual deterioration; the secret of this failure to profit by the unquestionable increase in earnestness of effort, which the clergy, organists, choirmasters, and choirs have alike displayed, is to be found in the absence of any adequate directing influence, the uncontrolled energy of the ill-educated musician having not unfrequently resulted in the overloading of services with musical ornament, to the utter weariness of congregations and the development of a most unwholesome spirit among choirs, who have come to regard themselves as masters of the situation, as indeed they too often are. The increased musical force available has demanded room for its exercise, and this has not unfrequently been granted at the expense not merely of ecclesiastical and artistic propriety, but of the ears of the people who are not only robbed of their proper share in musical worship, but are con-

demned to listen to strains which if nominally most musical are also most melancholy. The result arrived at as far as the popular voice is concerned was forcibly put in a leading article in the *Times* of September 13th, 1879, in which the writer said: "The Church of England has almost lost its congregational singing. The process of deterioration, not to say abandonment, has been long in progress. The organ and the select body of paid singers began the mischief, which has been only turned in another direction and aggravated by the little troupes of choristers. The results are sweet but childish, cold, and unimpressive. There is no body, no depth in the result, and it must be the feeling of every man in the congregation that the performance is wholly outside of him, and that he is not expected to join, and has, in fact, nothing to do with it." This verdict must, we fear, be accepted as only too clearly justified by the evidence, and although the writer proceeded illogically and almost absurdly, remembering their present character and the composition of the programmes, to suggest that the Festivals of the Three Choirs at Hereford, Worcester, and Gloucester ought to lead to reform, his description of the *status quo* cannot be said to be exaggerated. What is wanted to remedy the evil is for the clergy to receive as a general rule sufficient instruction in sight singing to enable them to hold their own with the musical officials of their churches, who in turn stand in urgent need of that wider general culture, and of that acquaintance with the structure and objects of liturgical forms, which would serve to correct some at least of the faults which now abound, and to remove some of the flaws for which no mere excellence of performance can atone. In the Festival services held during the year the rendering of Bach's *Christmas Oratorio*, and the *Elijah*, at Westminster Abbey, and of Dr. Stainer's *Daughter of Jairus*, at St. Paul's Cathedral, where the usual selection from Mendelssohn's *St. Paul* was sung on St. Paul's Day, may be mentioned as evidences that the disposition to utilise the orchestra in church is growing. The introduction of the *Elijah*, at Westminster Abbey, on Ascension Day, enabled Dr. Bridge to utilise the whole of the vast building by placing the band and choir on the raised space of the sacrarium, thus opening out choir, nave, and transepts to the congregation. This arrangement, despite the presence of the heavy organ-loaded screen which still separates nave from choir in the collegiate church, was sufficiently satisfactory to justify its repetition, while it suggested the

possibility of accomplishing at the Abbey the reform which has been so successful at St. Paul's, not only musically, but ecclesiologically, of opening out the church from end to end. In this way services at which oratorios have been introduced, either anthemwise or in the place of a sermon, have been adopted at other cathedrals, as at Canterbury, Norwich, and Hereford, and following in the track similar musical celebrations have been held at Tewkesbury, Coventry, Leamington, and other large churches. But while high musical art has thus been restored to the church, the danger inseparable from all such movements has not been escaped, and a feeble mimicry of these orchestral services under conditions where only failure is possible, has served to excite ridicule and to bring discredit upon the system. To prevent such mistakes is a duty which is as incumbent upon those in authority as it is to restore to the people their due share in the ordinary worship-music which the spread of musical instruction is rendering them daily more and more competent to take.

As the pulpit and the stage are in the eyes of many social reformers twin contributors to the work of popular elevation of taste and sentiment, so it is no harsh transition to turn from the music of the church to that of the concert room, and even of the lyric stage. Midway between them are the provincial festivals, at which sacred and secular works are accorded equal consideration. At the first of these meetings at Brighton, directed by Mr. Kuhe, the scheme included Mr. Gadsby's cantata "Lord of the Isles," and new overtures by Mr. Wingham and Mr. Walter Macfarren, in addition to many works of established reputation. At Edinburgh Sir Herbert Oakeley, the Reid Professor, gave his usual triad of admirable performances now familiarly termed the Edinburgh Orchestral Festival, commencing with the Reid Concert. The feature of the Scotch meeting distinguishing it from those held in the south, is the prominence given to the symphonies of the greater German writers, rendered by Mr. Charles Halle's admirable Manchester Orchestra. At Birmingham the recurrence of the Triennial Festival in September gave a hearing to two works by continental writers—one, a cantata, "The Lyre and the Harp," by M. Saint-Saens, the eminent French organist, entirely new, and the second Max Bruch's "Lay of the Bell," practically a novelty. The presence of Sir Michael Costa as conductor, with a trained band and chorus, ensured musical success; but financially the result was below the average,

owing perhaps to the commercial depression of the year. Hereford followed the midland metropolis with the Three Choirs Meeting, where Mr. Sullivan directed a very inferior performance of his unequal and somewhat laboured oratorio *The Light of the World;* the *Matthæus Passion* of Bach and Purcell's *Te Deum* in D forming other little known works in the scheme. The execution under the unaccustomed hands of the cathedral organist as conductor—a custom of the days when the Three Choirs really formed the executive body at the festivals—was generally voted unsatisfactory, while for the rest the strength of the orchestra and of the eminent singers assembled was wasted on inferior works. The last festival of the year at Bristol, held in October, with Mr. Charles Hallé as conductor, and his famous band on the orchestra, gave several works seldom heard with efficient instrumental resources in the provinces, including Mendelssohn's *Walpurgisnacht*, Mozart's *Requiem*, and Beethoven's Choral Symphony, while the novelty of the week was Brahms's *Rinaldo*. At the autumnal festival at Chester Cathedral, some new service music by the cathedral organist, Mr. J. C. Bridge, M.A., was introduced, with the *Magnificat* and *Nunc Dimittis*, written by his brother, Dr. J. F. Bridge, for the Caxton Festival at Westminster Abbey. The custom of charging for admission to the festival was resorted to, the proceeds being given to the Restoration Fund, but the oratorios and cantatas performed were all preceded and followed by a short service.

In the range of metropolitan concerts the Crystal Palace Saturday performances still hold the first place. Among the works heard for the first time were a new symphony by Mr. Villiers Stanford, of Cambridge; an overture by Mr. C. Hubert Parry; a symphony in F by Goetz; Reinecke's Festival Overture; Gadsby's "Lord of the Isles;" some excerpts from the Symphonie Fantastique by Berlioz; and Liszt's symphonic poem, "The Battle of the Huns." Even with these novelties, however, the real and permanent value of the concerts directed by Mr. Manns lies in their presentation of the symphonies of Mozart and Beethoven which can never be heard to greater perfection. An addition to the London concerts was supplied by a series of so-called "Orchestral Festival Concerts," conducted by Herr Richter of Vienna, whose name will be remembered as Wagner's lieutenant in his festival at the Albert Hall, and who in these programmes gave a prominent place to the music of the hero of Baireuth, selections from *Die Meistersinger*, *Tristan und Isolde*, and his

more ephemeral Kaisermarch, written for the Philadelphia Exhibition, finding place in a scheme which also included three Beethoven symphonies, Schumann's "Manfred" overture, and Liszt's symphonic poem "Les Preludes." Even the patronage of Prince Leopold as President, and the presence of the Prince of Wales at one of the concerts, failed to secure for them any great financial success, although the standard of executive excellence was very high. The concerts of Madame Viard-Louis, conducted by Mr. H. Weist Hill, gave London amateurs an opportunity of hearing many works for which they look in vain in the ultra-conservative programmes of the Philharmonic Society. The complaint so constantly made against the directors of this ancient corporation, of neglecting English composers, has been again urged unfortunately with no less justice than in previous years. The new Philharmonic Concerts, in the direction of which Mr. Ganz has succeeded Dr. Wylde, included the usual liberal infusion of modern works of all schools. The great need in London still is an orchestral concert with a moderate tariff of admission, such as Vienna, Berlin, and Paris supply, the Promenade Concerts, which have been given during the autumn at Covent Garden, forming the nearest approach to this desirable form of entertainment. At these concerts a far higher standard of music has obtained than at the first performances of the kind, conducted by Jullien and Mellon, and the programmes in which classical works have had a place have attracted some of the largest audiences. In the combination of orchestra and choir, the concerts of the Bach Choir stood first in interest, a graceful tribute being paid by Mr. Otto Goldschmidt, the conductor, to the memory of Sterndale Bennett, the first English musician who laboured to popularise the choral works of the Leipzig cantor, by the introduction, at the second concert, of *The Woman of Samaria*. Among other works given were Max Bruch's "Banquet of the Phœacians," from his *Odysseus*, and Bach's eight-part cantata "Now shall the Grace." The Sacred Harmonic Society only went through its performances of stock oratorios, but among the new associations which are coming to the front, the Borough of Hackney Society gave a performance of a new cantata, by its earnest conductor, Mr. E. Prout, entitled "Hereward." The year witnessed decided progress among these suburban societies, the Brixton Choral Society giving Dr. Bridge's *Mount Moriah*, while the Highbury Philharmonic Society, conducted by Dr. J. F. Bridge, and the newly-formed

Hampstead Musical Society, conducted by Mr. Coenen, set out in the right direction.

The chamber music concerts of the year were shadowed by the threatened retirement of the veteran director of the Musical Union, Professor Ella, who has, however, decided to conduct his matinées for another season, to the satisfaction of the subscribers. Mr. S. Arthur Chappell, with his Monday and Saturday popular concerts; Mr. Charles Hallé, with his recitals, which included concerted music; and Herr von Bulow (who also played at the director's matinée at the Musical Union), with recitals, filled up the now large measure of chamber music entertainments, to which Herr Franke and Herr Coenen also contributed.

From the concert to the stage brings us to the first season of the Royal Italian Opera, under the management of the sons of Mr. Gye, whose death was sincerely regretted. During the summer, twenty-eight operas were given, the novelties being Massenet's *Roi de Lahore* and the Marquis d'Ivry's *Amants de Verone*. The work of the season, heavily increased by the numerous extra performances, fell largely on Madame Adelina Patti, Mademoiselle Heilbron, and Mademoiselle Valleria. At Her Majesty's Opera of novelty there was nothing; but *Carmen*, with Miss Hauk, proved a trump card for Mr. Mapleson's hand, and Bizet's opera was played more frequently than any other work during the season. Madame Nilsson and Madame Gerster shared the honours, and Miss Kellogg also appeared. Opera in English was given at this theatre by Mr. Carl Rosa, but without the success which he had gained in the smaller houses, where his principal singers were more at home. The operatic successes of the year in London must be looked for in another direction—*H.M.S. Pinafore*, and *Les Cloches de Corneville* having been played literally night after night with a welcome which still seems to increase rather than diminish.

Before leaving the year and its doings, a word of tribute must be paid to those who, during its progress, have passed away from amongst us, including Henry Smart, organist and composer; C. L. Gruneisen, the *doyen* of musical critics; Dr. Buck, the venerable Norwich organist; Mrs. Lucy Anderson, the pianist; John Parry, the inimitable entertainer; and George Metzler, the head of the well-known firm bearing his name.

METROPOLITAN PHILANTHROPY IN 1879.

A PERIOD of commercial depression almost invariably carries with it a diminution in the incomes of the charitable societies and institutions which depend upon the ready money contributions of the public, and the experience of the year 1879 forms no exception to the rule. In the case of one great church society it was found necessary to make a public announcement that unless additional funds were immediately forthcoming the society's agents would be reduced in number, while in some of the metropolitan hospitals which, though lacking the noble endowments of the older institutions, are doing a most beneficent work, it was only by a special effort that the closing of several of the wards was avoided. The obvious inference from this fact is that systematic alms-giving is still very far from being a familiar practice with the majority of the people, and that their liberality is rather spasmodic than regular, and is therefore at once affected by any sudden change in their domestic finances. To place the incomes of the London Hospitals beyond the reach of any such fluctuating benevolence is, if they are maintained at all, little short of a public duty, for there is perhaps no more serious injury to a district with a large and poor population than is involved in shutting the doors of one of these institutions. Another lesson which is taught just as plainly by the influence of such a season as that through which we have passed is the urgent necessity for a more careful administration of all hospital funds, for it can scarcely be denied that in some institutions money is made to do far more work than it accomplishes in others, just as in our homes and orphanages the cost of the inmates' maintenance varies very considerably without any corresponding difference in the provision made for the comfort of the children. But, while the year which is closing as we write has thus been marked by "hard times" for the London charities, the exceptional healthiness of the season has relieved us from the necessity for any extraordinary effort to meet special cases of distress; and the attempt to create an impression that there was widespread want in East London was happily nipped in the bud before the needless benevolence of the public passing through the ready hands of professional almoners had literally created the distress for the purpose of relieving it. The correspondence on the subject in the daily newspapers gave evidence of the complete

change of view which has taken place of late years upon public alms-giving, and which has led the philanthropist to realise the truth that the relief of the poor is in reality a scientific work, in which, although there ought to be no stereotyped adherence to any hard and fast line, rules of investigation must be adopted, or there will be a perpetual risk of doing more good than harm. In this case the local representatives of the Charity Organisation Society, supported by the ministers of religion in the East End parishes, were able to prove that there was no unusual poverty in the district, and thus an appeal for what would probably have developed into a large fund, with a costly staff for its administration, was judiciously prevented.

Turning to the actual work of the year in the formation of new institutions, we find that the true function of charity as the handmaid of thrift and self-help is being recognised on all sides. The institutions established during the twelve months under review owe their origin in nearly every case to this principle of wise discrimination between cases which need temporary help and those for which a permanent provision is essential, and the Homes for Working Girls, the House of Rest for Milliners, and other kindred establishments which might be mentioned, are calculated to prove of immense value, in the same way that a small loan at the right moment is often far more serviceable and more really beneficial than a gift which tends to pauperise the recipient. In many of these Homes, as in the admirable institutions for giving to the over-worked, the sickly, or the convalescent a few weeks of much needed rest and country air, we find a sliding scale of payments, so that persons who can afford to contribute wholly or partially towards their maintenance can be received as well as those who are absolutely without funds or friends. The Homes for Working Girls and the similar institutions for boys in the metropolis form a most important and deserving class of institutions which may be said to be a recent fruit of philanthropic effort ; and it is to be hoped that, while the model lodging-house movement extends, the wants of those for whom some community of life and intercourse is desirable will also be considered in every district of the metropolis.

In connection with the medical charities of London, the most important movement which has taken place during the year has been the exposure, by a special committee of the British Medical Association, of the evils, long admitted, but still virtually condoned, and increasing rather than diminishing, of the out-

patient system at the hospitals. In the first place, there can be no question as to the injurious effect of the plan of opening the doors of the hospital surgery to almost every applicant, without reference to his capacity to pay for medical advice and medicine in his own neighbourhood. As an illustration of the extent to which the evil has grown one gentleman stated to the committee that, in a parish in Westminster, so demoralised were persons of the well-to-do class, that the guardians had given instructions to the relieving officer to send to voluntary hospitals those who applied for medical aid at the Poor-Law dispensary. But there is, secondly, the question whether, as at present worked, the out-patient system involves, from a medical point of view, anything less than a sham. On this point Mr. Timothy Holmes, as the mouthpiece of a deputation to the managing board of the Metropolitan Free Hospital, stated that the British Medical Association —a body of at least 8,000 practitioners—had come to the conclusion that a very great deal of the medical and surgical attention given to the out-patients of hospitals was absolutely worthless, and that, to throw open the doors of an institution with the idea that a few medical men could perform the duty of attending to the whole of the medical and surgical wants of a large district, was most mischievous and misleading. Yet to such an extent has this idea taken root, that of the 4,000,000 population of London fully a fourth pass through the out-patient departments of the hospitals every year. The governors of the hospitals are actuated by the best and purest motives, but the working of the system has caused a thorough failure of adequate medical aid to the sick poor. Its existence has prevented any complete success in the establishment of provident dispensaries, and if it were abolished or reformed it would involve no hardship even to those who cannot afford the few pence required to insure for a family medical attendance and medicine in sickness in a provident dispensary, for they can have proper attendance and medicine in the Poor-Law dispensaries established under "Gathorne Hardy's Act" ("Metropolitan Poor Law Amendment Act, 1867"). Mr. Holmes, on this occasion, insisted strongly on the worthlessness, from a medical point of view, of the treatment given to out-patients, and cited the case of the Metropolitan Free Hospital, with its 100 new patients a day, or 38,000 a year, and altogether nearly 80,000 patients a year, and he submitted that these numbers could not be seen in a manner to give any real relief. A few seconds' look at a patient would not enable

a medical man to become sufficiently acquainted with the peculiarities of the case to deal properly with it, and though it might be said that some cases were slight and the few serious, yet this gave a reason in itself why the medical men should not be harassed by increased numbers. Under the system it was impossible that the medical man could give the patients what they came for—the advice and medicine by which they could be cured. What was necessary was that the out-patients' department should be limited to such numbers as could be adequately and properly treated; that the governors should encourage the people to subscribe to provident dispensaries; that persons who could afford to pay for medical assistance should not be provided with it gratuitously; that the public (Poor-Law) dispensaries should be brought to the notice of those applicants who were proper subjects of such relief; and that, on the second application of patients after adequate advice had been given, they should be requested to afford information of their work, families, and income.

Such recommendations as these are, it may be objected, only the natural suggestion of the medical practitioners, who see their fees swept away by the extension of a system which enables any well-to-do person, who is not ashamed to apply for a free hospital ticket, to avoid a doctor's bill; but such a criticism is altogether beside the real question at issue, which involves, as we have shown, not merely the mischievous operation of pauperising those who throng the hospital rooms, but the question whether the work which is undertaken by the medical officers can be accomplished with full justice to the patients. The obvious remedy is to extend the provident dispensary as widely as possible, and to establish in every district a provident hospital, on the plan now in operation at Battersea, to the commencement of which, by Canon Erskine Clarke, reference was made in the "Companion" for 1879.

In connection with the internal administration of our hospitals, the step taken by the Queen during the year, in founding an Order of Merit for Hospital Nurses, must be recorded with intense satisfaction. Named after the ancient Hospital of St. Katherine—an institution which will, it may be hoped, under its new Master, fulfil more completely than it has done of late years the objects of its founder—the nurses, honoured with admission to the roll, are to be known as St. Katherine's nurses, and are not merely to receive a badge or armlet with the

monogram "St. K." worked upon it, but are to have a reward of 50*l.* a year. The appointment is to be held for three years, during which the recipient also has her ordinary salary at the hospital where she is employed, while another sum of 50*l.* is paid to the hospital for her maintenance during the period. Such a handsome recognition of a body of women, who have done and are doing much noble service to their race, cannot be too warmly applauded.

While the Queen has thus shown, in a tangible form, her appreciation of the labours of hospital nurses, the Prince and Princess of Wales have been among the foremost during the year in exhibiting their sympathy with some of the most useful institutions in the metropolis. On the 17th of July, the Prince laid the first stone of a new building for the Brompton Hospital for Consumption, the first wing of which was commenced with a similar ceremony in the year 1844, by the late Prince Consort. On another occasion their Royal Highnesses went down to Putney to lay the foundation stone of a new wing of the Hospital for Incurables; while on a third day, in July the Prince and Princess journeyed out to Ham Common, to present the prizes annually given by Lady Peek to the former inmates of the National Orphan Home, who, after being placed out in the world in domestic service, are able to bring up good reports from their employers. Such encouragement offered to institutions of high public utility, is a happy illustration of the ready interest which the Prince and Princess always take in cases where it is really deserved, and it may be pointed out, that no charities more worthy of distinctive notice could have been selected. The Home for Incurables especially is one of the too few institutions which open their doors to those who are, by the very gravity of their disease, excluded from the ordinary hospital, and it would be a fitting result of the thoughtful benevolence of the Royal visitors if similar Homes were to be established in every quarter of the metropolis.

In reference to the working of the Charity Commission, an important correspondence between the Commissioners and the Treasury upon the question of the taxation of charities, in order to meet the expenses of the Charity Commission, has been issued. In 1868, it appears, the Lords of the Treasury, having regard to the resolution of the House of Commons that the expenses of the Commission ought not to be borne by the public, submitted to the Commissioners whether, by a stamp or charge upon orders

or other proceedings, and by a charge for the management of the account for the sums marked, a fund could not be created towards the cost of the Commission. The secretary to the Commissioners prepared a scale to be charged for any business done by their Board, but from 1870 to 1878 the subject does not seem to have been pursued. The Treasury then requested the Commissioners to consider the question. The Commissioners drew up a statement, showing how a sum of 6,250*l.*, or at the most 7,000*l.* a year, might be raised by charges on the work of the office, and saying that a charge of 3*d.* in the pound, or 1 per cent. on the receipts of charities, would meet the expenses of the Commission. The reply to this statement bears date June 23. The Lords of the Treasury, it is said, "observe that the scheme which you submit for imposing a charge upon certain orders and proceedings of your Board would produce a revenue that would only cover a small portion of the expenses of the department, and would, besides, entail a considerable number of changes in the existing law. For these reasons, my Lords are not disposed to adopt that scheme, but think that the suggestion you offer with regard to the imposition of a stamp upon all accounts of charities rendered to your Board indicates the principle which should be followed. They have accordingly caused a Bill to be drawn on these lines."

In the repression of professional mendicity and in the exposure of the nefarious proceedings of those persons who, owing to the unsatisfactory condition of the law, are still able to obtain money under false pretences, while they successfully evade the punishment due to that offence, the Charity Organisation Society is continuing its useful work. It has during the year adopted the extreme but needful course of actually printing in its "Reporter" the names of certain individuals who are thus trading upon the too trusting benevolence of the charitable, and the fact that the Society possesses damaging information as to the management of the institutions nominally conducted by these people ought in itself to be sufficient to check their proceedings. Pending the adoption of improved legislation, this method of treatment of what is in reality a public scandal is all that can be accomplished, and it rests with philanthropists to apply the most efficient of all remedies by refusing to subscribe to any institution which does not in the first place produce a satisfactory balance-sheet vouched for by persons of acknowledged respectability.

TABLE OF ALL THE PUBLIC GENERAL ACTS

PASSED IN THE SIXTH SESSION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND,

42 AND 43 VICTORIÆ. A.D. 1879.

(The Acts are given in the order in which they were passed, the number denoting the chapter. An Abstract of those Acts distinguished by an asterisk is given in the pages following this table, which contain a classified epitome of the more important statutes passed during the year.)

*1. An Act to amend the Law respecting the holding of Assizes.
(Applies 39 & 40 Vict. c. 57, and 40 & 41 Vict. c. 46; Winter Assizes Acts, 1876 and 1877.
Provides for execution of sentences of death, notwithstanding provisions of 28 and 29 Vict. c. 126, and 40 & 41 Vict. c. 21; Prisons Acts, 1865 and 1877.
Applies 31 & 32 Vict. c. 24; Capital Punishment Act, 1868, as to Inquests by Coroner.
Applies 3 & 4 Will. 4, c. 71; Assizes Act, 1833.)

2. An Act to apply the sum of £4,250,000 out of the Consolidated Fund to the service of the year ending on the 31st March, 1879.

3. An Act to raise the sum of £4,250,000 by Exchequer Bonds, for the service of the year ending on the 31st March, 1879.
(Applies 29 & 30 Vict. c. 25; Exchequer Bills and Bonds Act, 1866.)

4. An Act to continue for three months the Act of the Session of the forty-first and forty-second years of the reign of Her present Majesty, chapter ten, intituled "An Act for punishing Mutiny and Desertion, and for the better Payment of the Army and their Quarters."
(Continues (for three months) 41 & 42 Vict. c. 10; Mutiny Act, 1878.)

5. An Act to continue for three months the Act of the Session of the forty-first and forty-second years of the reign of Her present Majesty, chapter eleven, intituled "An Act for the Regulation of Her Majesty's Royal Marine Forces while on shore."
(Continues (for three months) 41 & 42 Vict. c. 11; Marine Mutiny Act, 1878.)

*6. An Act to amend the Law with respect to District Auditors.
(Repeals section 46 (in part) of 4 & 5 Will. 4, c. 76;
" section 32 (in part) of 7 & 8 Vict. c. 101;
" section 8 of 12 & 13 Vict. c. 103;
" section 24 of 31 & 32 Vict. c. 122;
} Poor Law Amendment Acts, 1834, 1844, 1849, and 1868.
" sections 36, 37 of 30 & 31 Vict. c. 6; Metropolitan Poor Act, 1867.
" section 60 (in part) of 33 & 34 Vict. c. 75; Elementary Education Act, 1870.
" section 247 (in part) of 38 & 39 Vict. c. 55; Public Health Act, 1855.
" section 9 (in part) of 41 & 42 Vict. c. 77; Highways and Locomotives (Amendment) Act, 1878.
Applies 23 & 24 Vict. c. 51, and 40 and 41 Vict. c. 66; Local Taxation Returns Acts, 1860 and 1877.
" 4 & 5 Will. 4, c. 76; Poor Law Amendment Act, 1834.)

7. An Act to apply certain sums out of the Consolidated Fund to the service of the years ending on the 31st March, 1878, 1879, and 1880.

*8. An Act to make further provision for the Registration of Deaths, Marriages, and Births occurring out of the United Kingdom among Officers and Soldiers of Her Majesty's Forces, and their families.
(Provides for Registration of Births, Deaths, &c., out of United Kingdom among Officers and Soldiers of Her Majesty's Forces.)

*9. An Act to declare the true meaning of Section Thirty of the Friendly Societies Act, 1875.

(Amends 38 & 39 Vict. c. 60; Friendly Societies Act, 1875. Construes Act with Acts of 1875 and 1876.)

*10. An Act to amend the Poor Rate Assessment and Collection Act, 1869.

(Amends 32 & 33 Vict. c. 41; Poor Rate Assessment and Collection Act, 1869.)

*11. An Act to amend the Law of Evidence with respect to Bankers' Books.

(Repeals 39 & 40 Vict. c. 48; Bankers' Books Evidence Act, 1876, and makes new provisions in lieu thereof.)

*12. An Act to amend the Divided Parishes and Poor Law Amendment Act, 1876.

(Amends 39 & 40 Vict. c. 61; (Divided Parishes and Poor Law Amendment Act, 1876), as to money to which a pauper or pauper lunatic may be entitled as member of Friendly or Benefit Society.)

13. An Act to amend the Act thirty-third and thirty-fourth Victoria, chapter forty-two, for the abolition of Petty Customs.

(Repeals proviso to section 4 of 33 & 34 Vict. c. 42.)

14. An Act to apply the sum of £6,694,816 out of the Consolidated Fund to the service of the year ending on the 31st March, 1880.

15. An Act to amend the Public Health (Scotland) Act, 1867.

(Amends 30 & 31 Vict. c. 101; Public Health (Scotland) Act, 1867.)

16. An Act to provide for the winding up of the West Indian Relief Commission, and for the remission of certain Sums remaining unpaid in respect of Loans by the said Commission.

(Provides for winding up of the West Indian Relief Commission, and Transfer of Powers to Public Works Loan Commissioners.

Repeals 2 & 3 Will. 4, c. 125;
" 3 & 4 Vict. c. 40;
" 7 & 8 Vict. c. 17;
" 8 & 9 Vict. c. 50;
" 11 & 12 Vict. c. 38;
" 19 & 20 Vict. c. 35;
} West India Loan Acts.

" 5 & 6 Will. 4, c. 51;
" 23 & 24 Vict. c. 57;
" 30 & 31 Vict. c. 91;
} Dominica Loan Acts.

*17. An Act to amend the House of Commons Costs Taxation Act, 1847.

(Amends 10 & 11 Vict., c. 69; and extends provisions thereof to Provisional Orders, &c.)

*18. An Act for the Licensing of Metropolitan Suburban Racecourses.

(Provides for Licensing of Horse-races within ten miles of London.)

*19. An Act to facilitate the control and cure of Habitual Drunkards.

(Provides for establishment of "Retreats" for Habitual Drunkards.
Applies, as regards England, 11 & 12 Vict. c. 43; Summary Jurisdiction Act, 1848.
" " Scotland, 27 & 28 Vict. c. 53; Summary Procedure Act, 1864.
" " " 20 Geo. 2, c. 43; Heritable Jurisdiction.
" " Ireland, 14 & 15 Vict. c. 93; Petty Sessions (Ireland) Act, 1851.
" " " 40 & 41 Vict. c. 56; County Officers and Courts (Ireland) Act, 1877.)

20. An Act to apply the sum of £6,567,023 out of the Consolidated Fund to the service of the year ending on the 31st March, 1880.

21. An Act to grant certain Duties of Customs and Inland Revenue, and to amend the Laws relating to Customs and Inland Revenue.

(Customs:—
Continues Duties on Tea,

Amends 39 & 40 Vict. c. 35; (Customs Tariff) as to Duties on Cocoa-paste or Chocolate.
,, 41 & 42 Vict. c. 15; as to Duties on Cigars.
,, and in part repeals 39 & 40 Vict. c. 36; Customs Consolidation Act, 1876.

Taxes:—
Grants Duties of Income Tax; and applies provisions of former Acts.
Provisions as to Inhabited House Duties.
Provisions as to United Parishes in respect of Land Tax under 19 & 20 Vict. c. 80.
Provisions as to collection of Income Tax, Land Tax, and Inhabited House Duties.

Excise:—
Applies 11 & 12 Vict. c. 43; (Summary Jurisdiction Act), and 28 & 29 Vict. c. 127; (Small Penalties Act), in proceedings for penalties in relation to Dogs.
Amends sections 2 and 4 of 5 & 6 Vict. c. 93; as to use of Oil in Tobacco.)

*22. An Act for more effectually providing for the Prosecution of Offences in England; and for other purposes.
(Provides for Establishment of Office of Director of Public Prosecutions.)

23. An Act to provide for the Preservation of Hares in Ireland.
(Provides for close time for Hares.
Applies 14 & 15 Vict. c. 90; Fines Act (Ireland), 1851.)

24. An Act for promoting the Revision of the Statute Law of Ireland.
(Repeals (with Savings) the Enactments described in the Schedule.)

25. An Act to give facilities for providing Dispensary Houses and Dwelling Houses for Medical Officers of Dispensary Districts in certain parts of Ireland.
(Applies Improvement of Landed Property (Ireland) Acts; viz., 10 & 11 Vict. c. 32, 12 & 13 Vict. c. 59, 13 & 14 Vict. c. 31, 15 & 16 Vict. c. 34, 23 & 24 Vict. c. 19, 24 & 25 Vict. c. 71, 29 & 30 Vict. c. 40, 38 & 39 Vict. c. 82, and 40 & 41 Vict. c. 27.
Applies Medical Charities (Ireland) Acts (14 & 15 Vict. c. 68, &c.)
,, Lands Clauses Acts, 8 & 9 Vict. c. 18, and 23 & 24 Vict. c. 106.)

26. An Act to amend the Salmon Fishery Act with relation to fixed Engines in Tidal Waters.
(Amends Law with reference to close time for fixed engines, notwithstanding Salmon Fishery Acts, 1861 to 1876 (24 & 25 Vict. c. 109, 28 & 29 Vict. c. 121, 36 & 37 Vict. c. 71, and 39 & 40 Vict. c. 19.)

27. An Act to empower Parliamentary Burghs in Scotland to become members of the Convention of Royal Burghs.
(Provides for admission to the Convention of Royal Burghs of Parliamentary Burghs named in the Schedule.)

28. An Act to repeal the Convention (Ireland) Act, passed in the Irish Parliament in the thirty-third year of the reign of His late Majesty King George III, and to amend and declare the Law in certain cases in respect to Assemblies and Public Meetings.
(Repeals (with Saving) 33 Geo. 3, c. 29 (I), with respect to unlawful Assemblies.)

29. An Act to remove doubts as to the validity of certain Marriages of British subjects on board Her Majesty's Ships.
(Removes doubts as to validity of certain Marriages on board Her Majesty's Ships.)

*30. An Act to amend the Sale of Food and Drugs Act, 1875.
(Amends 38 and 39 Vict. c. 63; Sale of Food and Drugs Act, 1875.)

*31. An Act to amend the Public Health Act, 1875, as to Interments.
(Amends 38 and 39 Vict. c. 55; (Public Health Act, 1875), and extends its provisions to Cemeteries.
Incorporates 10 and 11 Vict. c. 65; Cemeteries Clauses Act, 1847.)

32. An Act to bring into force the Army Discipline and Regulation Act, 1879.

(Defines Army Mutiny and Marine Mutiny Acts, 41 & 42 Vict. c. 10, and 41 and 42 Vict. c. 11.
Provides for Commencement and Duration of Army Discipline and Regulation Act, 1879, 42 & 43 Vict. c. 33.
Construes certain Acts referring to Mutiny Acts and Articles of War.
Repeals all Enactments inconsistent with provisions of Army Discipline and Regulation Act, 1879.)

*33. An Act to amend the Law relating to the Discipline and Regulation of the Army.

(Division of Act into Five Parts; viz.:—I. Discipline; II. Enlistment: III. Billeting, &c.; IV. General Provisions; V. Application of Military Law, &c.
Applies 26 & 27 Vict. c. 57; Regimental Debts Act, 1863.
" 29 & 30 Vict. c. 109; Naval Discipline Act, 1866.
" 16 & 17 Vict. c. 97, s. 72; } Lunatic Asylums.
" 20 & 21 Vict. c. 71, s. 85; } Lunatic Asylums.
" 30 & 31 Vict. c. 118, s. 10; } Lunatic Asylums.
" 28 & 29 Vict. c. 126; Prisons Act, 1865.
" 40 & 41 Vict. cc. 21, 49; Prisons Acts, 1877.
" 30 & 31 Vict. c. 110; Reserve Forces Act, 1867.
" 30 & 31 Vict. c. 111; Militia Reserve Act, 1867.
" 11 & 12 Vict. c. 43; Summary Jurisdiction.
" 27 & 28 Vict. c. 53; Summary Procedure (Scotland.)
" 14 & 15 Vict. c. 90; Fines (Ireland) Act. 1851.
" 14 & 15 Vict. c. 93; Petty Sessions (Ireland) Act, 1851.
Suspends 3 Car. 1 c. 1, 31 Car. 2 c. 1, and 6 Anne (1.) c. 14; as to Billeting.)

34. An Act to regulate the Employment of Children in Places of Public Amusement in certain cases.

(Applies 11 & 12 Vict. 43; Summary Jurisdiction Act, 1848.
" 27 & 28 Vict. c. 53; Summary Procedure (Scotland) Act, 1864.
" 14 & 15 Vict. c. 93; Petty Sessions (Ireland) Act, 1851.)

35. An Act to remit certain Loans made by the Exchequer Loan Commissioners and the Public Works Loan Commissioners, and by the Irish Exchequer Loan Commissioners, and the Commissioners of Public Works in Ireland.

(Extinguishes debts due in respect of Loans mentioned in the Schedule.)

36. An Act for the transfer of property held for the service of Her Majesty's Customs to the Commissioners of Her Majesty's Works and Public Buildings; and for other purposes.

(Applies 15 & 16 Vict. c. 28; Works and Public Buildings.
" 8 & 9 Vict. cc. 18, 19; Lands Clauses Acts, 1845.
Continues in force certain parts of 16 & 17 Vict. c. 107, and 39 & 40 Vict. c. 36; Customs Consolidation Acts, 1853 and 1876.)

37. An Act to amend the Commons Act, 1876.

(Amends 39 & 40 Vict. c. 56; Commons Act, 1876.)

38. An Act to amend the Slave Trade (East African Courts) Act, 1873.

(Amends 36 & 37 Vict. c. 59; Slave Trade (East African Courts) Act, 1873.)

39. An Act to amend the law with respect to Returns of Receipts and Expenditure as regards Highways, and to dispense with the verification before Justices of the accounts of Surveyors of Highways.

(Repeals s. 45 (in part) of 5 & 6 Will. 4 c. 50; } Highway Acts, 1835, 1849, and 1862.
" 12 & 13 Vict. c. 35; } Highway Acts, 1835, 1849, and 1862.
" s. 27-29 of 25 and 26 Vict. c. 61; } Highway Acts, 1835, 1849, and 1862.
Applies 23 & 24 Vict. c. 51; } Local Taxation Returns Acts, 1860 and 1877.)
" 40 & 41 Vict. c. 66; } Local Taxation Returns Acts, 1860 and 1877.)

40. An Act to amend the Conveyancing and Land Transfer (Scotland) Act, 1874.

(Amends 37 & 38 Vict. c. 94; Conveyancing (Scotland) Act, 1874.
Construes Act with 19 & 20 Vict. c. 79; Bankruptcy (Scotland) Act, 1856.
Provision as to repeal of s. 118 of 19 & 20 Vict. c. 79, by section 55 of 37 & 38 Vict. c. 94.)

41. An Act to enable Guaranteed Railway Companies in India and the Secretary of State for India in Council to enter into Agreements with respect to the working of Railways, and with respect to Telegraphs, and to confer upon those Companies additional powers with respect to their undertakings.

(Enables certain Railway Companies in India to enter into Working Agreements with the Government of India.)

42. An Act to amend the Acts relating to the Valuation of Lands and Heritages in Scotland.

(Amends 17 & 18 Vict. c. 91; 20 & 21 Vict. c. 58; 30 & 31 Vict. c. 80; } Valuation of Lands (Scotland) Acts, 1854, 1857, and 1867.
Applies 28 & 29 Vict. c. 38; Commissioners of Supply Meetings (Scotland) Act, 1865.)

43. An Act to enable the Secretary of State in Council of India to create and issue Capital Stock in the United Kingdom in exchange for so much of the Annuity created under the East Indian Railway Company Purchase Act, 1879, and thereby made chargeable on the Revenues of India as may be purchased by the Secretary of State under that Act.

(Enables Secretary of State for India to create and issue Stock for purposes of East India Railway Purchase Act, 42 & 43 Vict. c. ccvi.)

44. An Act to make provision in regard to the office of Lord Clerk Register of Scotland; and for other purposes.

(Repeals s. 26 of 31 & 32 Vict. c. 64; Land Registers (Scotland) Act, 1868.
Applies 22 Vict. c. 26; Superannuation Act, 1859.)

45. An Act to authorise the issue of a sum out of the Consolidated Fund by way of loan to the Secretary of State for India.

(Authorises advance of £2,000,000 out of Consolidated Fund to Government of India.
Applies 38 and 39 Vict. c. 45; Sinking Fund Act, 1875.)

46. An Act to continue certain Turnpike Acts, and to repeal certain other Turnpike Acts; and for other purposes connected therewith.

(Repeals and continues certain Local Acts as set forth in Schedule.)

47. An Act to continue and amend the Petroleum Act, 1871.

(Amends and continues 34 & 35 Vict. c. 105; Petroleum Act, 1871.)

48. An Act to amend the Law respecting the Powers of School Boards in relation to Industrial Schools.

(Recites 33 & 34 Vict. c. 75; 36 & 37 Vict. c. 86; 39 & 40 Vict. c. 79; } Elementary Education Acts, 1870, 1873, and 1876.
" 29 & 30 Vict. c. 118; 35 & 36 Vict. c. 21; } Reformatory and Industrial Schools Acts, 1866 and 1872.
Removes doubts as to powers of School Boards in relation to Industrial Schools.)

49. An Act to amend the Law relating to the Summary Jurisdiction of Magistrates.

(Repeals 10 & 11 Vict. c. 82; Juvenile Offenders.
" s. 35, in (part) of 11 & 12 Vict. c. 43; Summary Jurisdiction.
" 13 & 14 Vict. c. 37;* Summary Jurisdiction (Larceny).
" part of 18 & 19 Vict. c. 126;* Administration of Criminal Justice.
" 27 & 28 Vict. c. 80; Administration of Criminal Justice (Cinque Ports).
" 27 & 28 Vict. c. 110;* Mitigation of Penalties.
" 28 & 29 Vict. c. 127; Small Penalties.
" s. 2 of 31 & 32 Vict. c. 116;* Larceny and Embezzlement.
" s. 13 of 34 & 35 Vict. c. 78;* Regulation of Railways.
* So far as relates to England.
Applies 11 & 12 Vict. c. 42; Indictable Offences Act, 1848.
" 11 & 12 Vict. c. 43; Summary Jurisdiction Act, 1848.
" 20 & 21 Vict. c. 43; Summary Proceedings before Justices.
" 32 & 33 Vict. c. 62; Debtors Act, 1869.
" 38 & 39 Vict. c. 77; Judicature Act, 1875.

Applies 38 & 39 Vict. c. 90; Employers and Workmen Act, 1875.
,, 40 & 41 Vict. c. 43; Justices' Clerks Act, 1877.)

50. An Act to amend the Law relating to Bills of Sale in Ireland.
(Repeals 17 & 18 Vict. c. 55; Bills of Sale (Ireland) Act, 1854.
Applies 40 & 41 Vict. c. 57; Supreme Court of Judicature Act (Ireland), 1877.)

51. An Act to apply a sum out of the Consolidated Fund to the service of the year ending the 31st day of March, 1880, and to appropriate the Supplies granted in this Session of Parliament.
(Authorises issue out of Consolidated Fund of £34,986,621, and appropriation of the same.)

52. An Act to appoint additional Commissioners for executing the Acts for granting a Land Tax and other rates and taxes.
(Appoints additional Commissioners for carrying into execution 7 & 8 Geo. 4, c. 75, and subsequent Acts.)

53. An Act to amend the Law regulating Municipal Elections in Ireland.
(Amends 38 & 39 Vic. c. 40 (Municipal Elections Act, 1875), and extends it to all boroughs in Ireland in which 3 & 4 Vict. c. 108 (Municipal Corporations, Ireland), is in force.
Amends 3 & 4 Vict. c. 108; Municipal Corporations (Ireland).

54. An Act to make better provision for the adjustment of Parish Boundaries, and to make further amendments in the Acts relating to the relief of the Poor in England.
(Amends 4 & 5 Will. 4 c. 76; Poor Law Amendment Act, 1834.
,, 14 & 15 Vict. c. 105; Poor Law Amendment Act, 1851.
,, 30 & 31 Vict. c. 106; Poor Law Amendment Act, 1867.
,, 32 & 33 Vict. c. 45; Union Loans Act, 1869.
,, 39 & 40 Vict. c. 61; Divided Parishes and Poor Law Amendment Act, 1876.
Applies 18 & 19 Vict. c. 121; Nuisances Removal Act, 1855.
Provides for certain extra-parochial Places under 20 Vict. c. 19.)

55. An Act to reduce the Minimum Term of Penal Servitude in the case of a previous conviction, and to amend the Law with respect to the notifications and reports made under sections five and eight of the Prevention of Crimes Act, 1871.
(Repeals s. 2 of 27 & 28 Vict. c. 47; Penal Servitude Act, 1864.
Amends 34 & 35 Vict. c. 112; Prevention of Crimes Act, 1871.)

56. An Act to continue for a further period the Regulation of Railways Acts, 1873 and 1874.
(Continues 36 & 37 Vict. c. 48, and 37 & 38 Vict. c. 40 (Regulation of Railways Acts 1873 and 1874), until 31st December, 1882.)

57. An Act to amend the Public Health (Ireland) Act, 1878.
(Amends 41 & 42 Vict. c. 52; Public Health (Ireland) Act, 1878.
Applies 19 & 20 Vict. c. 98; Burial Grounds (Ireland) Act, 1856.)

58. An Act to provide for the Collection, either in money or by stamps, of Fees payable in Public Offices.
(Repeals 29 & 30 Vict. c. 76; Public Offices (Fees) Act, 1866.)

59. An Act for repealing certain Enactments relating to Civil Procedure which have ceased to be in force, or have become unnecessary, and for abolishing Outlawry in Civil Proceedings.
(Repeals (with Savings) the Enactments described in the Schedule.)

60. An Act to enable the Secretary of State in Council of India to raise Money in the United Kingdom for the Service of the Government of India.
(Repeals part of Section 16 of 40 & 41 Vict. c. 51; East India Loans.
Extends 5 & 6 Will 4 c. 64; as to Stamp Duties.
,, 33 & 34 Vict. c. 93; Married Women's Property Act, 1870.)

61. An Act to make provision for raising the sum required for the

purposes of the Advance authorised by the Indian Advance Act, 1879.

(Makes provision for raising £2,000,000 for purposes of 42 & 43 Vict. c. 45; Indian Advance Act, 1879.)

62. An Act to raise the sum of £4,200,000, by Exchequer Bonds, Exchequer Bills, or Treasury Bills, for the service of the year ending on the thirty-first day of March, 1880.

(Applies 29 & 30 Vict. c. 25, and 40 & 41 Vict. c. 2; Exchequer Bills and Bonds Acts, 1866 and 1877.)

63. An Act to amend the Artizans and Labourers' Dwellings Improvement Act, 1875.

(Amends 38 & 39 Vict. c. 36; Artizans and Labourers' Dwellings Act, 1875.
,, 8 & 9 Vict. c. 18; Lands Clauses Act, 1845.
Applies (as to Nuisances) 38 & 39 Vict. c. 55; Public Health Act, 1875.
,, ,, 41 & 42 Vict. c. 52; Public Health (Ireland) Act, 1878.
,, ,, 29 & 30 Vict. c. 41; Sanitary Act, 1866.)

*64. An Act to extend the powers of the Artizans' Dwellings Act of 1868, by provisions for compensation and rebuilding.

(Amends 31 & 32 Vict. c. 130; Artizans and Labourers' Dwellings Act, 1868, and construes same with this Act.
Applies 38 & 39 Vict. c. 55; Public Health Act, 1875.
,, 41 & 42 Vict. c. 52; Public Health (Ireland) Act, 1878.
,, 8 & 9 Vict. cc. 18, 19, 14 & 15 Vict. c. 70, and 23 & 24 Vict. c. 106; Lands Clauses Acts, 1845, 1851, and 1860.
,, 16 & 17 Vict. c. 40; Public Works Loan Act, 1853.
,, 14 & 15 Vict. c. 70, 23 & 24 Vict. c. 97, 27 & 28 Vict. c. 71, and 31 & 32 Vict. c. 70; Railway Acts, 1851, 1860, 1864, and 1868.)

*65. An Act to promote the advancement of Learning, and to extend the benefits connected with University Education in Ireland.

(Empowers Her Majesty, by Charter, to found a University in Ireland.
Applies ss. 7, 8, 9 of 29 & 30 Vict. c. 84; Attorneys and Solicitors Act (Ireland) 1866.)

66. An Act to continue for a further period the power of making Schemes under the Endowed Schools Acts, 1869, 1874, and 1876.

(Continues (until the 31st December, 1882) powers of making Schools under 32 & 33 Vict. c. 56, 36 & 37 Vict. c. 87, and 37 & 38 Vict. c. 87; Endowed Schools Acts, 1869, 1873, and 1874.)

67. An Act to continue various expiring Laws.

(Continues (as in Schedule) the following Acts, and Acts amending the same, viz.:—
5 & 6 Will. 4, c. 27; Linen, &c., Manufactures (Ireland).
3 & 4 Vict. c. 89; Poor Rates (Stock in Trade Exemption).
4 & 5 Vict. c. 35; Copyhold, &c., Commissions.
4 & 5 Vict. c. 59; Application of Highway Rates.
10 & 11 Vict. c. 32; Landed Property Improvement (Ireland).
10 & 11 Vict. c. 98; Ecclesiastical Jurisdiction.
11 & 12 Vict. c. 32; County Cess (Ireland).
14 & 15 Vict. c. 104; Episcopal, &c., Estates.
23 & 24 Vict. c. 19; Dwellings for Labouring Classes (Ireland).
24 & 25 Vict. c. 109; Salmon Fishery (England).
25 & 26 Vict. c. 97; Salmon Fisheries (Scotland).
26 & 27 Vict. c. 105; Promissory Notes.
27 & 28 Vict. c. 9; Malt for Animals.
27 & 28 Vict. c. 20; Promissory Notes, &c. (Ireland).
28 & 29 Vict. c. 46; Militia Ballots Suspension.
28 & 29 Vict. c. 66; Malt Duty.
28 & 29 Vict. c. 83; Locomotives on Roads.
29 & 30 Vict. c. 52; Prosecution Expenses.
32 & 33 Vict. c. 42; Irish Church.
34 & 35 Vict. c. 87; Sunday Observance Prosecutions.
38 & 39 Vict. c. 48; Police Expenses.
39 & 40 Vict. c. 21; Juries (Ireland).)

*68. An Act to authorise the Metropolitan Board of Works to defray

expenses incurred in relation to the promotion of certain Bills in Parliament relating to the supply of Water to the Metropolis.

(Indemnifies Metropolitan Board of Works as to expenses incurred in relation to the promotion of certain Bills for supply of Water to the Metropolis.
Applies 18 & 19 Vict. c. 120; Metropolis Management Act, 1855.)

69. An Act for further amending the Acts relating to the raising of Money by the Metropolitan Board of Works: and for other purposes relating thereto.

(Amends 38 & 39 Vict. c. 65; Metropolitan Board of Works (Loans) Act, 1875.
,, 41 & 42 Vict. c. 37; Metropolitan Board of Works (Money) Act, 1878.
Applies 32 & 33 Vict. c. 102; } Metropolitan Board of Works Acts, 1869 to 1878.
,, 33 & 34 Vict. c. 24; }
,, 34 & 35 Vict. c. 47; }
,, 38 & 39 Vict. c. 65; }
,, 39 & 40 Vict. c. 55; }
,, 40 & 41 Vict. c. 52; }
,, 41 & 42 Vict. c. 37; }
,, 18 & 19 Vict. c. 120; Metropolitan Management Act, 1855.
Empowers Board to expend Money for purposes of—
18 & 19 Vict. c. 120; } Metropolis Management Acts, 1855 and 1862.
25 & 26 Vict. c. 102; }
28 & 29 Vict. c. 90; Fire Brigade.
36 & 37 Vict. c. 86; Tooting Beck Common.
38 & 39 Vict. c. 65; Tooting Graveney Common.
40 & 41 Vict. c. 201; Clapham Common and Bostall Heath Common.
41 & 42 Vict. c. 145; Plumstead Common.
35 & 36 Vict. c. 143; } Metropolitan Street Improvements.
40 & 41 Vict. c. 235; }
42 & 43 Vict. c. 39; St. Pancras Loans.
42 & 43 Vict. c. 198; Thames River (Prevention of Floods).
42 & 43 Vict. c. 219; Knightsbridge Improvements, &c.
Obelisk on Victoria Embankment.
Metropolitan Asylum District Loans.)

70. An Act to amend the Acts relating to Vaccination in Ireland.

(Repeals (in part) 26 & 27 Vict. c. 52; Vaccination (Ireland) Act, 1863.
Applies 21 & 22 Vict. c. 64; } Vaccination (Ireland) Acts, 1858, 1863, and 1868.
,, 26 & 27 Vict. c. 52; }
,, 31 & 32 Vict. c. 87; }
,, 26 & 27 Vict. c. 11; Registration of Births (Ireland) Act, 1863.)

71. An Act to regulate the Practice in Registry Courts in Ireland.

(Amends 13 & 14 Vict. c. 69; Parliamentary Voters (Ireland).)

*72. An Act to provide for the re-hearing of Investigations into Shipping Casualties, and to amend the rules as to the mode of holding, and procedure at, such Investigations.

(Amends 17 & 18 Vict. c. 104; } Merchant Shipping Acts, 1854, 1862, and 1876.)
,, 25 & 26 Vict. c. 63; }
,, 39 & 40 Vict. c. 80; }

73. An Act to authorise the Commissioners of Her Majesty's Woods and Forests and Land Revenues to agree with the Conservators of the River Thames on the Payments for Piers or Landing-places in or upon the Bed or Shore of the River Thames.

(Amends 20 & 21 Vict. c. 147; Thames Conservancy Act, 1857.)

74. An Act for improving the position of the Teachers of National Schools in Ireland.

(Extends borrowing powers of Commissioners under 32 & 33 Vict. c. 42; Irish Church Act, 1869.
Authorises Commissioners of National Debt to advance Funds under 24 & 25 Vict. c. 14, and 26 & 27 Vict. c. 87.
Repeals part of 38 & 39 Vict. c. 82; National School Teachers' Residences (Ireland) Act, 1875.
Applies 40 & 41 Vict. c. 27; Public Works Loans (Ireland) Act, 1877.)

75. An Act to amend and continue the Acts relating to Election

Petitions, and to the prevention of Corrupt Practices at Parliamentary Elections.

(Amends and continues the following Acts, viz:—
17 & 18 Vict. c. 102;
21 & 22 Vict. c. 87;
26 & 27 Vict. c. 29;
} Corrupt Practices Prevention Acts, 1854, 1858, 1863.
31 & 32 Vict. c. 125; Parliamentary Elections Act, 1868.
32 & 33 Vict. c. 21; Corrupt Practices Commission Expenses Act, 1869.
34 & 35 Vict. c. 61; Election Commissioners Expenses Act, 1871.)

*76. An Act to amend the Law with respect to the Liability of Members of Banking and other Joint Stock Companies; and for other purposes.

(Amends and applies 25 & 26 Vict. c. 89;
" " 30 & 31 Vict. c. 131;
" " 40 & 41 Vict. c. 26;
} Companies Acts, 1862, 1866, and 1877.)

77. An Act to amend the Acts relating to the Public Works Loan Commissioners and the Commissioners of Public Works in Ireland, and to grant Money for the purpose of Loans by the said Commissioners; and for other purposes in relation thereto.

(Repeals s. 2 of 27 & 28 c. 62; Isle of Man Harbours Act, 1864.
" part of s. 7 of 29 & 30 Vict. c. 23; Isle of Man Customs, &c., Act, 1866.
Applies 38 & 39 Vict. c. 89; Public Works Loans Act, 1875.
" 40 & 41 Vict. c. 27; Public Works Loans (Ireland) Act, 1877.)

78. An Act to amend the Supreme Court of Judicature Acts.

(Amends 36 & 37 Vict. c. 66;
" 38 & 39 Vict. c. 77;
" 40 & 41 Vict. c. 9;
} Supreme Court of Judicature Acts, 1873, 1875, and 1877.)

(Repeals (with savings) the following Enactments, viz:—
Wholly—29 Car. 2, c. 51; Taking of Affidavits; 11 Geo. 4 and 1 Will. 4, c. 58; Fees (Superior Courts of Law); 13 & 14 Vict. c. 75; Fees (Common Pleas); 23 & 24 Vict. c. 128; Court of Chancery; 25 & 26 Vict. c. 96; Common Pleas (Officers); 28 & 29 Vict. c. 45; Common Law Courts (Fees); 29 & 30 Vict. c. 101; Common Law Courts (Fees).
In part—53 Geo. 3, c. 24; Administration of Justice; 11 Geo. 4 and 1 Will. 4, c. 70; Administration of Justice; 1 Will. 4, c. 7; Actions in Courts of Law; 2 & 3 Will. 4, c. 39; Uniformity of Process; 3 & 4 Will. 4, c. 74; Abolition of Fines, &c.; 3 & 4 Will. 4, c. 94; Chancery Offices; 3 & 4 Will. 4, c. 99; Sheriffs and Exchequer Offices Regulations; 7 Will. 4 and 1 Vict. c. 30; Abolition of Offices (Superior Courts); 3 & 4 Vict. c. 66; Judges, &c., Court of Admiralty; 5 Vict. c. 5; Administration of Justice; 5 & 6 Vict. c. 86; Abolition of Offices, Revenue Side of Exchequer; 5 & 6 Vict. c. 103; Abolition of Offices, Court of Chancery; 6 & 7 Vict. c. 20: Abolition of Offices, Queen's Bench; 6 & 7 Vict. c. 38; Appeals, Privy Council; 6 & 7 Vict. c. 67; Writs of Error; 10 & 11 Vict. c. 96; Relief of Trustees; 12 & 13 Vict. c. 109; Petty Bag Offices, &c.; 13 & 14 Vict. c. 35; Proceedings in Chancery; 14 & 15 Vict. c. 83; Administration of Justice; 15 & 16 Vict. c. 73; Officers, Common Law Courts; 15 & 16 Vict. c. 76; Common Law Procedure; 15 & 16 Vict. c. 80; Chancery Offices Abolition; 15 & 16 Vict. c. 86; Chancery Procedure; 15 & 16 Vict. c. 87; Chancery Suitors Relief; 16 & 17 Vict. c. 22; Examiner in Chancery; 16 & 17 Vict. c. 70; Lunacy Regulation; 17 & 18 Vict. c. 78; Oaths, High Court of Admiralty; 17 & 18 Vict. c. 125; Common Law Procedure; 18 & 19 Vict. c. 126; Administration of Justice; 18 & 19 Vict. c. 134; Despatch of Business in Chancery; 19 & 20 Vict. c. 97; Mercantile Law Amendment; 20 & 21 Vict. c. 77; Probates and Administrations; 20 & 21 Vict. c. 85; Divorce Court; 21 & 22 Vict. c. 27; Chancery Amendment; 22 & 23 Vict. c. 21; Office of Queen's Remembrancer, &c.; 23 & 24 Vict. c. 126; Common Law Procedure; 23 & 24 Vict. c. 149; Prisoners in Contempt of Chancery; 29 & 30 Vict. c. 68; Superannuation (Law Officers); 30 & 31 Vict. c. 87; Court of Chancery (Officers); 32 & 33 Vict. c. 91; Courts of Justice (Salaries, &c.); 36 & 37 Vict. c. 66; Supreme Court of Judicature; 40 & 41 Vict. c. 18; Settled Estates.)

ABSTRACTS OF IMPORTANT ACTS

PASSED IN THE SIXTH SESSION OF THE TWENTY-FIRST PARLIAMENT OF GREAT BRITAIN AND IRELAND.

1. CHURCH AND EDUCATION.

UNIVERSITY EDUCATION, IRELAND.

[42 and 43 Victoriæ, cap. 65.—15th August, 1879.]

An Act to promote the advancement of learning, and to extend the benefits connected with University Education in Ireland.

Section 2 empowers the Queen to form by a charter a University in Ireland, to be one body politic and corporate by such name as Her Majesty may appoint. The corporation is by section 3 to consist of a Chancellor, nominated from time to time by Her Majesty, and holding office during Her pleasure, and a Senate, and graduates. The first Senators are to be the Chancellor, and such other persons not exceeding thirty-seven members as Her Majesty may appoint, the first and every alternate vacancy occurring after the first nomination of the Senate, to be filled by the election of a Senator by the Convocation of the members until the number so elected reaches six. The elected Senators are to hold office three years from the date of their respective elections, when they will be eligible for re-election. By section 4, the Convocation of the University is to consist of the Senate of the University, and of male graduates having such qualifications and complying with such conditions as the charter shall prescribe. Section 5 provides for the election of Vice-Chancellor; section 6 gives the University power to confer degrees, and sections 7 to 9 refer to the general provisions of the charter, and the powers of the Senate and Convocation. Section 11 provides for the dissolution of the Queen's University on a day within two years from the granting of the charter to the new University, but the Queen's University is not to be dissolved until the new University is in a position to confer degrees. Section 12 provides for the transfer of all the real and personal estate and effects of every description belonging to the Queen's University, at its dissolution, to the University constituted under the provisions of the charter mentioned in this Act, to be administered by the Senate for the purposes of the University. Section 13 provides that this Act shall not in anywise affect the Queen's Colleges in Ireland. Section 14 provides for the saving of the rights of the holder of any permanent office of profit in the Queen's University, who shall be in office at the time of the dissolution of that University, and who is deprived of his office by the operation of this Act, and is not appointed in the University constituted under this Act to an office involving the same or analogous duties.

2. ARMY AND NAVY.

ARMY DISCIPLINE AND REGULATION.

[42 and 43 Victoriæ, cap. 33.—24th July, 1879.]

An Act to amend the Law relating to the Discipline and Regulation of the Army.

The provisions of this important but purely technical Act are contained in five parts and upwards of 180 sections. The subjects of the various divisions are: 1, discipline; 2, enlistment; 3, billeting and impressment of cartridges; 4, general provisions; 5, application of military law, saving provisions, and definitions.

REGISTRATION OF BIRTHS, DEATHS, AND MARRIAGES (ARMY).

[42 and 43 Victoriæ, cap. 8.—23rd May, 1879.]

An Act to make further provision for the Registration of Deaths, Marriages, and Births occurring out of the United Kingdom among Officers and Soldiers of Her Majesty's Forces, and their families.

This Act may, by section 1, be cited as "The Registration of Births, Deaths, and Marriages (Army) Act, 1879." Section 2 provides for the authentication and transmission to the Registrar-General in England of registers of births and deaths occurring and marriages solemnised out of the United Kingdom of officers and soldiers of the army kept in pursuance of Her Majesty's regulations. Where such registrations relate to a Scotch or Irish subject of Her Majesty, the Registrar-General of Births and Deaths in England is, as soon as may be after receiving the register, to send a certified copy of so much thereof as relates to such death, marriage, or birth to the Registrar-General of Births and Deaths in Scotland or Ireland, as the case may require. Every Registrar-General of Births and Deaths to whom a register or certified copy of a register is sent, in pursuance of this section, is required to have the same filed and preserved in or copied in a book to be kept by him for the purpose, and to be called the "Army Registration Book," which is to be deemed a certified copy of the register book within the meaning of the Registration Acts. Section 3 provides that unless either before or after the passing of this Act, documents evidencing deaths, marriages, and births among officers and soldiers of the army, and their families, have been or shall be transmitted to the Registrar-General, they are to be deemed to be in his legal custody and admissible in evidence. By section 4 the Act is not to apply to births and marriages or deaths in the United Kingdom, except where they occurred before the passing of the Act. Section 5 fixes July, 1879, for the commencement of the operation of the Act.

3. FINANCE AND TAXATION.

HOUSE OF COMMONS COSTS TAXATION.

[42 and 43 Victoriæ, cap. 17.—3rd July, 1879.]

An Act to amend the House of Commons Costs Taxation Act, 1847.

The object of this statute is to extend and apply the provisions of "The House of Commons Costs Taxation Act, 1847" (10 and 11 Vict., cap. 69), to the costs, charges, and expenses of any Parliamentary agent, solicitor, or other person in respect to the obtaining or promotion of or opposition to any Provisional Order or Provisional Certificate, or any Bill for confirming the same; and in respect to the promotion of any Bill by any public trustees or commissioners, or by any municipal or other public authority, and in respect to the opposition to any public and general Bill. Under section 2 in case the taxing officer of the House of Commons shall be requested by one of Her Majesty's Principal Secretaries of State or by the Local Government Board to tax and settle, or to assist in taxing and settling, any costs, charges, or expenses incurred in respect of any Bill, or in respect of any Provisional Order or Provisional Certificate, he is thereupon to proceed to tax and settle the same, and to return it with his opinion thereon to the Secretary of State or to the Local Government Board, as the case may be. The taxing officer is by section 3 to have the same powers and be entitled to the same fees for taxation under this Act which he would receive under the principal Act. The short title of the Act is fixed under section 4 as "The House of Commons Costs Taxation Act, 1879."

LIMITED LIABILITY COMPANIES.

[42 and 43 Victoriæ, cap. 76.—15th August, 1879.]

An Act to amend the Law with respect to the Liability of Members of Banking and other Joint Stock Companies, and for other purposes.

The short title of this statute is by section 1 to be "The Companies Act, 1879." By section 2 the Bank of England is exempt from its application, and by section 3 it is, as far as consistent with its tenor, to be construed as one with the Companies Acts of 1862, 1867, and 1877, the whole of these statutes being referred to as "The Companies Acts, 1862 to 1879." By section 4 any company registered before or after the passing of this Act as an unlimited company may register under "The Companies Acts, 1862 to 1879" as a limited company, or any company already so registered may re-register under this Act. Such registration is not to affect any debts, liabilities, obligations, or contracts entered into by such company prior to registration. By section 5 an unlimited company may, by the resolution of the members when assenting to registration as a limited company under "The Companies Acts, 1862 to 1879," and for the purpose of such registration or otherwise, increase the nominal amount of its capital by increasing the nominal amount of each of its shares, provided always that no part of such increased capital shall be capable of being called up, except in the event of, and for the purpose of, the company being wound up. In

cases where no such increase of nominal capital may be resolved upon an unlimited company may, by such resolution, provide that a portion of its uncalled capital shall not be capable of being called up, except in the event of and for the purposes of the company being wound up. A limited company may by a special resolution declare that any portion of its capital which has not been already called up shall not be capable of being called up, except in the event of and for the purpose of winding up; and thereupon such portion of capital shall not be capable of being called up, except in the event of, and for the purposes of, the winding up. Section 6 of the new Act repeals section 182 of the Act of 1862, and in its place it is enacted as follows:—A bank of issue registered as a limited company, either before or after the passing of this Act, shall not be entitled to limited liability in respect of its notes; and the members thereof shall continue liable in respect of its notes in the same manner as if it had been registered as an unlimited company; but in case the general assets of the company are, in the event of the company being wound up, insufficient to satisfy the claims of both the note-holders and the general creditors, then the members, after satisfying the remaining demands of the note-holders, shall be liable to contribute towards payment of the debts of the general creditors a sum equal to the amount received by the note-holders out of the general assets of the company. For the purposes of this section the expression "the general assets of the company" means the funds available for payment of the general creditor as well as the note-holder. It is also declared to be lawful for any bank of issue registered as a limited company to make a statement on its notes to the effect that the limited liability does not extend to its notes, and that the members of the company continue liable in respect of its notes in the same manner as if it had been registered as an unlimited company. Section 7 provides that once at the least in every year the accounts of every banking company registered after the passing of this Act as a limited company shall be examined by an auditor or auditors, who shall be elected annually by the company in general meeting. It is also enacted that a director or officer of the company shall not be capable of being elected its auditor, and that an auditor on quitting office is to be re-eligible. If any casual vacancy occurs in the office of any auditor the surviving auditor or auditors (if any) may act, but if there is no surviving auditor, the directors are forthwith to call an extraordinary general meeting for the purpose of supplying the vacancy. Every auditor is to have a list delivered to him of all books kept by the company, and is at all reasonable times to have access to the books and accounts of the company; and he may, in relation to such books and accounts examine the directors or any other officer of the company. If a banking company has branch banks beyond the limits of Europe, it is to be sufficient if the auditor is allowed access to such copies of and extracts from the books and accounts of any such branch as may have been transmitted to the head office of the company in the United Kingdom. A report is to be made to the members by the auditor or auditors on the accounts examined, and on every balance-sheet laid before the company in general meeting during his or their tenure of office; and in every such report the auditor is to state whether the balance-sheet referred to in the report is in his opinion a full and fair balance-sheet properly drawn up, so as to exhibit a true

and correct view of the state of the company's affairs, as shown by the books of the company. The auditors' report is to be read before the company in general meeting, and their remuneration is to be fixed by the general meeting appointing them, and is to be paid by the company. Section 8 requires that every balance-sheet submitted to the annual or other meeting of the members of every banking company registered after the passing of this Act as a limited company shall be signed by the auditor or auditors, and by the secretary or manager (if any), and by the directors, or by three of them at the least. Under section 9, on the registration, in pursuance of this Act, of a company which has been already registered, the registrar is to make provision for closing the former registration of the company, and may dispense with the delivery to him of copies of any documents delivered on the original registration, but with this exception the registration is to take place as if it were a new registration. Section 10 provides that any company may register under this Act and obtain the privileges conferred by it, notwithstanding any Act of Parliament or other document constituting or regulating the company.

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4. LAW AND JUSTICE.

SPRING ASSIZES.

[42 and 43 Victoriæ, cap. 1.—14th March, 1879.]

An Act to amend the Law respecting the holding of Assizes.

By section 1 of this Act, the short title of the statute is "The Spring Assizes Act, 1879." Section 2 declares it to be expedient to enable Her Majesty to unite counties for the purpose of holding spring assizes in the manner in which Her Majesty is authorised to unite counties for the purpose of holding winter assizes, and to make similar provision in relation to the jurisdiction of the Central Criminal Court over offences committed in the neighbouring counties to that which Her Majesty is able to make under "The Winter Assizes Act, 1876," and therefore enacts that all the provisions of "The Winter Assizes Act, 1876," are to be deemed to be herein enacted, with the substitution of "spring assizes" for "winter assizes," and of the months of March, April, and May for the months of November, December, and January respectively: provided that nothing in this Act, or "The Winter Assizes Acts, 1876 and 1877," is to affect the custom of holding separate assizes in and for each county twice a year. Under section 3, notwithstanding anything in "The Prisons Act, 1877," or anything done in pursuance of that Act, where judgment of death has been passed upon a convict at any assizes held after the passing of this Act, the judgment may be carried into execution in any prison in which the convict was confined for the purpose of safe custody prior to his removal to the place where the assizes were held, and the sheriff of the county for which such assizes were held is to be charged with the execution of that judgment, and is for that purpose to have the same jurisdiction and powers, and be subject to the same duties in the prison in which the judgment is to be carried into execution,

although such prison is not situate within his county, as he has by law with respect to the common gaol of his county, or would have had if "The Prison Act, 1866," and "The Prison Act, 1877," had not passed. The coroner, whose duty it is to hold an inquest on the bodies of prisoners dying in any prison, is to hold an inquest in accordance with "The Capital Punishment Amendment Act, 1868," on the body of any convict executed within the prison.

FRIENDLY SOCIETIES.

[42 and 43 Victoriæ, cap. 9.—23rd May, 1879.]

An Act to declare the true meaning of Section 30 *of "The Friendly Societies Act,* 1875."

The first section of this short Act declares that section 30 of "The Friendly Societies Act, 1875," is to apply only to such friendly societies, whether registered or unregistered, and industrial assurance companies, as receive contributions by means of collectors at a greater distance than ten miles from the registered office or principal place of business of the society or company. By its second section this Act is to be construed as one with "The Friendly Societies Act, 1875," and "The Friendly Societies Amendment Act, 1876," and may be cited together with the same as "The Friendly Societies Acts." The section in the Act of 1875 to which this refers, provides that in the case of societies receiving contributions through collectors, all the members are to be supplied with copies of rules and a printed policy—in the case of a family, one of each being sufficient—that non-payment is not to void a policy until a written or printed notice has been delivered or sent by post to him, prepaid, at his last known abode, informing him that unless payment is made in fourteen days his policy will be forfeited; and that collectors are incapacitated by holding that office from serving on the committee of management, or voting at meetings.

BANKERS' BOOKS EVIDENCE.

[42 and 43 Victoriæ, cap. 11.—23rd May, 1879.]

An Act to amend the Law of Evidence with respect to Bankers' Books.

Section 2 repeals the "Bankers' Books Evidence Act" of 1876, but does not affect anything done before this Act comes into operation. By section 3, subject to the provisions of the Act, a copy of any entry in a banker's book is in legal proceedings to be received as *primâ facie* evidence of such entry and of the matter recorded. By section 4 before such a copy can be received, evidence must be given that the book from which it is taken was at the time of the entry one of the ordinary books in use at the bank, that the entry was made in the ordinary way of business, and that the book is in the custody of the bank, such proof being given by a partner or officer of the bank, or supplied orally, or by an affidavit. By section 5 proof of the correctness of any copy is required before it can be received as legal evidence. By section 6 a banker or officer of a bank is not, in any legal proceeding to which the bank is not a party, compellable to produce any banker's book the contents of which can be proved under this Act, or to appear as a witness to prove the matters, transactions, and accounts

therein recorded, unless by order of a judge made for special cause. Under section 7, on the application of any party to a legal proceeding, a court or judge may order that such party be at liberty to inspect and take copies of any entries in a banker's book for any of the purposes of such proceedings. An order under this section may be made either with or without summoning the bank or any other party, and is to be served on the bank three clear days before the same is to be obeyed, unless the court or judge otherwise directs. By section 8 the costs of any application to a court or judge under or for the purposes of this Act, and the costs of anything done or to be done under an order of a court or judge made under or for the purposes of this Act, are left in the discretion of the court or judge, who may order the same or any part thereof to be paid to any party by the bank, where the same have been occasioned by any default or delay on the part of the bank. Any such order against a bank may be enforced as if the bank was a party to the proceeding. In section 9 of this Act the expressions "bank" and "banker" mean any person, persons, partnership, or company carrying on the business of bankers, and having duly made a return to the Commissioners of Inland Revenue, and also any savings bank certified under the Acts relating to savings banks, and also any post office savings bank. Section 10 defines the terms used in the Act.

CHARGES FOR PAUPERS' MAINTENANCE.

[42 and 43 Victoriæ, cap. 12.—23rd May, 1879.]

An Act to amend "The Divided Parishes and Poor Law Amendment Act, 1876."

Section 23 of 39 and 40 Vict., cap. 61, provided that where any pauper was entitled to an annuity or periodical payment, the trustee or other person bound to pay it might hand over to the guardians out of the instalments the cost of the pauper's maintenance, such payment being a legal discharge to the trustee for the amount so paid. In the case of a pauper lunatic entitled as a member of a benefit or friendly society to any payment, the guardians were empowered to receive from him, or to recover from his executors after death, the sum incurred for his maintenance, and the justices of the peace were authorised to make an order for the payment of such amount; provided always, that the guardians or their relieving officer must declare the relief to have been given on loan. The alteration effected in the law by this new statute is that the provisions just summarised as contained in section 23 of "The Divided Parishes and Poor Law Amendment Act, 1876," are not to apply to any moneys which a pauper or pauper lunatic having a wife or other relative dependent upon him for maintenance may be entitled to receive as a member of any friendly or benefit society, but such moneys are subject to any deductions for keeping up his membership required by the rules of such society, or any branch thereof, to be paid or applied by the trustees, committee, or other officers of such society or branch to or for the maintenance of such wife or relative; and where a pauper or pauper lunatic having no wife or relative so dependent upon him is entitled to any such moneys, no claim is to be made under the said Act by the guardians of any union or parish upon any such society of which he is a member,

or against any branch thereof, for the expenses incurred in his relief, unless and until the guardians or their relieving officer shall have declared the relief to be given on loan, and shall have, within thirty days thereof, notified the same in writing to the secretary or trustees of the society or branch of which the pauper or pauper lunatic is a member, and as such entitled to receive any payment. The Act may, under its second section, be cited as "The Poor Law Amendment Act, 1879."

METROPOLITAN AND SUBURBAN RACECOURSES.

[42 and 43 Victoriæ, cap. 18.—3rd July, 1879.]

An Act for the Licensing of Metropolitan Suburban Racecourses.

The preamble recites that the frequency of horse-races in the immediate vicinity of the metropolis is productive of much mischief and inconvenience, and the holding of such races in thickly populated places near the metropolis is calculated to cause, and does in fact cause, annoyance and injury to persons resident near to the places where such races are held. Section 1 defines a horse-race within the meaning of the Act as a competition between two or more horses at which more than twenty persons shall be present. Section 2 enacts that on and after the 25th March, 1880, horse-races shall be unlawful within ten miles of Charing Cross, unless in a place for which a licence for horse-racing has been obtained pursuant to the provisions hereinafter contained. Section 3 gives power to justices to issue at Michaelmas licences for horse-racing for any open or enclosed land or place, to the owner, lessee, or occupier of such land or place, on application to the justices at the Michaelmas Quarter Sessions for the division in which such land or place is situate, the justices being hereby empowered to grant or withhold a licence at their discretion, such licence, if granted, to be of force and valid for twelve months dating from the 25th March next following the date of such application. Under section 4 every such application is to be made to the justices in the same manner as applications for licences for places to be kept for public dancing, music, or other entertainment under the provisions of the Act of 25 Geo. II. Section 5 renders persons contravening this Act liable to a penalty of 10*l.* or imprisonment for two months, on taking part in unlicensed horse-races. A similar penalty is imposed on persons who fail to obtain the necessary licence for horse-races. Fines are also to be imposed upon all occupiers or owners of ground where unlicensed races are held. Unlicensed races are under section 5 to be treated as nuisances and dealt with accordingly. The last section, 8, gives the short title of the statute as "The Racecourses Licensing Act, 1879."

A PUBLIC PROSECUTOR.

[42 and 43 Victoriæ, cap. 22.—3rd July, 1879.]

An Act for more effectually providing for the Prosecution of Offences in England, and for other purposes.

Section 2 provides for the appointment by a Secretary of State of an officer to be called the Director of Public Prosecutions, with such

salary, not exceeding 2,000*l.* a year, as the Secretary may, with Treasury sanction, fix. His duties are to institute and carry on, under the superintendence of the Attorney-General, such criminal proceedings (whether in the Court for Crown Cases Reserved, before sessions of Oyer and Terminer or of the peace, before magistrates, or otherwise), and to give such advice and assistance to chief officers of police, clerks to justices, and other persons, whether officers or not, concerned in any criminal proceeding respecting the conduct of that proceeding, as may be for the time being prescribed by regulations under this Act, or may be directed in a special case by the Attorney-General. The regulations under this Act provide for the Director of Public Prosecutions taking action in cases which appear to be of importance or difficulty, or in which special circumstances, or the refusal or failure of a person to proceed with a prosecution, appear to render the action of such Director necessary to secure the due prosecution of an offender, and also fix the areas or districts for which the assistants of such director shall respectively be appointed and act. Section 3 empowers the Secretary of State to appoint, for periods not exceeding seven years, assistants, not exceeding six, to the Director of Public Prosecutions, and assign their duties, their salaries being subject to Treasury sanction, being, together with that of the Director, paid out of moneys provided by Parliament. The Director of Public Prosecutions, or his assistants, must under section 4 be barristers or solicitors of the Supreme Court of Judicature, of not less than ten years' standing in the case of the Director, and seven years in the case of the assistants, and neither are to directly or indirectly practise their profession while employed under the Act, except in the discharge of their duties. Section 5 relates to the delivery of recognizances, inquisitions, &c., to the Director of Public Prosecutions. Section 6 provides that if the Director abandons a prosecution the aggrieved parties may proceed, and section 7 enacts that nothing in this Act shall interfere with the right of any person to institute, undertake, or carry on any criminal proceeding. Section 8 authorises the Attorney-General, with the approval of the Lord Chancellor and a Secretary of State, from time to time to make, and when made rescind, vary, and add to, regulations for carrying the Act into effect. The draft of all such regulations proposed to be approved as aforesaid is to be laid before both Houses of Parliament, and is not to be finally approved until the draft has lain before each House of Parment for not less than forty days upon which such House has sat.

SHIPPING CASUALTIES INVESTIGATIONS.

[42 & 43 Victoriæ, cap. 72.—15th August, 1879.]

An Act to provide for the re-hearing of Investigations into Shipping Casualties, and to amend the rules as to the mode of holding, and procedure at, such Investigations.

The short title is, by section 1, "The Shipping Casualties Investigations Act, 1879." Section 2 enacts, that when an investigation into the conduct of a master, mate, or engineer, or into a shipping casualty, has been held under "The Merchant Shipping Act, 1854," or any Act amending the same, or under any provision for holding such investigations in a British possession, the Board of Trade may, in any case,

and shall, if new and important evidence which could not be produced at the investigation has been discovered, or if for any other reason there has in their opinion been ground for suspecting a miscarriage of justice, order that the case be re-heard, either generally or as to any part. The re-hearing is to take place either by the court or authority by whom it was heard in the first instance, or by the Wreck Commissioner, or in England or Ireland by a judge of Her Majesty's High Court of Justice exercising jurisdiction in Admiralty cases, or in Scotland by the Senior Lord Ordinary, or any other judge in the Court of Session whom the Lord President of that court may appoint for the purpose, and the case shall be so re-heard accordingly. Where in any such investigation a decision has been given with respect to the cancelling or suspension of the certificate of a master, mate, or engineer, and an application for a re-hearing under this section has not been made or has been refused, an appeal will lie. Section 3 supplies rules as to investigations into shipping casualties and misconduct of officers. Under section 4, any general rule made in pursuance of this Act is to be laid before both Houses of Parliament within thirty days after it is made, if Parliament be then sitting, or if not, within thirty days after the commencement of the then next ensuing session. Section 5 fixes the 1st Nov., 1879, for the commencement of the Act.

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5. LOCAL GOVERNMENT.

PUBLIC HEALTH (INTERMENTS).

[42 and 43 Victoriæ, cap. 31.—21st July, 1879.]

An Act to amend "The Public Health Act, 1875," *as to Interments.*

By section 1 the short title of this Act is "The Public Health (Interments) Act, 1879," and it is to be construed as one with "The Public Health Act, 1875," in this Act called the principal Act. By section 2 (1) the provisions of the principal Act, as to a place for the reception of the dead before interment, there called a mortuary, are to extend to a place for the interment of the dead, in this Act called a cemetery; and the purposes of the principal Act are to include the acquisition, construction, and maintenance of a cemetery; (2) a local authority may acquire, construct, and maintain a cemetery either wholly or partly within or without their district, subject as to works without their district, for the purposes of a cemetery, to the provisions of the principal Act, as to sewage works, by a local authority without their district; (3) a local authority may accept a donation of land for the purpose of a cemetery, and a donation of money or other property for enabling them to acquire, construct, or maintain a cemetery. By section 3 "The Cemeteries Clauses Act, 1847," is to be incorporated with this Act.

This brief statute has since been supplemented by a circular dated 19th August, 1879, and issued to the sanitary authorities throughout the country, in which the operation of the Act is pointed out. Section 141 of the Public Health Act enables a sanitary authority to provide and fit up a proper place as a mortuary for the reception of dead bodies before interment, and to make bye-laws with respect to

the management and charges for the use of the same; and it is, moreover, compulsory on a sanitary authority to provide a mortuary if they should be required by the Local Government Board to do so. The effect, therefore, of the Act which has just been passed is, in like manner, to empower a sanitary authority to provide a cemetery, and to render it compulsory on them to do so, if the Local Government Board should require one to be provided. The Legislature has not specified the cases in which it is incumbent upon the sanitary authority to give effect to the provisions of the new statute; but, seeing that it is incorporated with the Public Health Act, there can be no doubt that wherever, in the interests of the public health, it is necessary that a cemetery should be provided in any locality, the Legislature contemplated that the local authority would exercise the important powers now conferred upon them. The circular proceeds to state the circumstances under which it will be incumbent upon the sanitary authorities to take action:—1. Where in any burial-ground which remains in use there is not proper space for burial, and no other suitable burial-ground has been provided. 2. Where the continuance in use of any burial-ground (notwithstanding there may be such space) is, by reason of its situation, in relation to the water supply of the locality, or by reason of any circumstances whatsoever, injurious to the public health. 3. Where, for the protection of the public health, it is expedient to discontinue burials in a particular town, village, or place, or within certain limits. There are other circumstances which might render it necessary or expedient that a cemetery should be provided, such as inconvenience of access from the populous parts of the district to the existing burial-ground, or the nature of the site, or the character of the subsoil; and instances may exist where, in deference to the wishes of the inhabitants, it may be expedient to provide, in accordance with the policy of the Burials Acts, a cemetery in which persons of different creeds may be buried with their own religious rites. On all or any of the foregoing grounds the authority of the Local Government Board may be invoked, and, if the application should be well founded, a compulsory order would necessarily follow. The question, however, whether a cemetery should be provided for a particular locality, will be one for the determination of the sanitary authority in the first instance; and it is only in the event of their default to establish a proper cemetery where one is required, or in consequence of a loan being needed to carry out the undertaking, or, if they should determine to construct a cemetery outside their district, of objection being taken to such a proceeding, that the Local Government Board have any authority to interfere. The circular further directs the attention of the sanitary authority to the following obligations and powers imposed upon and exercisable by them under the incorporated enactments:—*With respect to the making of the cemetery.*—The cemetery is not to be constructed nearer to any dwelling-house than 200 yards, except with the consent of the owner and occupier. The sanitary authority may build such chapels in the cemetery for the performance of burial services as they may think fit, and embellish the grounds of the cemetery. The cemetery must be enclosed by substantial walls or iron railings of the height of 8ft. at least. The sanitary authority must keep the cemetery and the building and fences thereof in complete repair and in good order and condition. *With respect to burials.*—The sanitary

authority may set apart a portion of the cemetery for burials according to the rites of the Established Church, and the Bishop of the diocese may, on the application of the sanitary authority, consecrate the portion so set apart. A chapel, to be approved by the Bishop, must be built on the consecrated part for the performance of the Burial Service of the Established Church. A salaried chaplain is to be appointed to officiate in the consecrated part of the cemetery, the appointment and salary to be subject to the approval of the Bishop. The sanitary authority may set apart the whole or a portion of the unconsecrated part of the cemetery, as a place of burial for persons not being members of the Established Church, and may allow in any chapel built in such unconsecrated part a burial service to be performed according to the rites of any church or congregation other than the Established Church. ***With respect to Exclusive Rights of Burial and Monumental Inscriptions.***—The sanitary authority may set apart portions of the cemetery for the purpose of granting exclusive rights of burial therein, and may sell the exclusive rights of burial in such portions, and the right of placing any monument or gravestone in the cemetery, or any tablet or monumental inscription on the walls of any chapel or other building in the cemetery. It should be observed that the Act under consideration does not extend to the metropolis, and it is scarcely necessary to point out that in other parts of the country, where suitable cemeteries are in existence, there can rarely be need for resorting to its provisions. The President trusts, however, that in other localities the sanitary authorities will not hesitate to avail themselves of the important powers conferred by the Act, having regard to their serious obligations in the interest of the public health, and to the responsibilities imposed upon them by the Legislature.

DISTRICT AUDITORS.

[42 and 43 Victoriæ, cap. 6.—28th March, 1879.]

An Act to amend the Law with respect to District Auditors.

The preamble declares that, under the existing law, the auditors of the accounts relating to the relief of the poor (commonly termed district auditors) are, under "The Poor Law Amendment Act, 1868," appointed by the Local Government Board, and are by that Act declared to be civil servants of the State within the operation of "The Superannuation Act, 1859," though the remuneration and expenses of such auditors, which are by law payable out of local rates, are in fact paid partly out of moneys annually provided by Parliament, and partly out of local rates; and that it is expedient that in future the whole of such remuneration and expenses should be paid out of moneys voted by Parliament, and that in lieu of the amount now so paid out of local rates an equivalent sum should be raised by means of stamps. Section 1 gives the short title of the statute as "The District Auditors Act, 1879." By section 2, after the 25th March, 1879, all payments to district auditors out of any local rate were to cease, and the whole of the salaries or remuneration and of the expenses of district auditors, to such amount as might be sanctioned by the Treasury, were to be paid out of moneys provided by Parliament. For the purpose of contributing to the amount required for the payment of such

salaries, remuneration, and expenses, every local authority, whose accounts are audited by a district auditor is to be charged a stamp duty, for the use of Her Majesty, according to the following scale given in the schedule:—Where the total of the expenditure comprised in the financial statement is under 20*l.*, the sum shall be 5*s.*; 20*l.* and under 50*l.*, 10*s.*; 50*l.* and under 100*l.*, 1*l.*; 100*l.* and under 500*l.*, 2*l.*; 500*l.* and under 1,000*l.*, 3*l.*; 1,000*l.* and under 2,500*l.*, 4*l.*; 2,500*l.* and under 5,000*l.*, 5*l.*; 5,000*l.* and under 10,000*l.*, 10*l.*; 10,000*l.* and under 20,000*l.*, 15*l.*; 20,000*l.* and under 50,000*l.*, 20*l.*; 50,000*l.* and under 100,000*l.*, 30*l.*; 100,000*l.* and upwards, 50*l.* By section 3, where the accounts of the receipts and expenditure of a local authority are audited by a district auditor, the local authority is to prepare and submit to him at every audit (other than an extraordinary audit held in pursuance of section 6 of "The Poor Law Amendment Act, 1866,") a financial statement in duplicate in the prescribed form, and on one of these accounts is to be fixed the stamp charged under this Act, such stamp being cancelled by the auditor at the conclusion of his audit, when he is also to certify on each duplicate the amount in words of the expenditure so audited and allowed and the correctness of the statement. The stamped duplicate is to be sent by the auditor to the Local Government Board, and no further account of the same receipts and expenditure in pursuance of "The Local Taxation Returns Acts, 1870 and 1877," need be sent in unless the Local Government Board specially require it. Section 4 empowers the Local Government Board, with the sanction of the Treasury, to appoint as many district auditors as they may think necessary, and assign to them their duties and districts, the districts so assigned being each deemed an audit district. The Board may also appoint, with Treasury sanction, a person or persons to assist the district auditor in his duties, and fix his salary, and allowances, and expenses, to be paid out of moneys provided by Parliament. Section 5 provides that where any accounts of the receipts and expenditure of a local authority are subject by law to be audited by a district auditor, the Local Government Board may from time to time by order make, revoke, and vary such regulations as seem to them necessary or proper respecting the audit of such accounts, including the form of keeping the accounts of the local authority and their officers, the day or days to which the accounts are to be made up, the time within which they are to be examined by the local authority, the mode in which, if it is so prescribed, they are to be certified by the local authority or any officer of that authority, the mode of publishing the time and place of holding the audit, the persons by whom such accounts are to be produced for audit, and the mode of conducting the audit, and an order under this section is to be deemed to be an order within the meaning of section 98 of the "The Poor Law Amendment Act, 1834." By section 6, the duties charged under this Act are to be deemed stamp duties under the management of the Commissioners of Inland Revenue, and all the Acts relating to stamp duties, and offences in connection with stamp duties, are to apply accordingly. Failure on the part of a local authority, or its clerk or treasurer, to submit financial statement, is, by section 7, to be punishable by a fine not exceeding 20*l.* for each offence, to be recovered by action on behalf of Her Majesty in the High Court of Justice.

ASSESSED RATES.

[42 and 43 Victoriæ, cap. 10.—23rd May, 1879.]

An Act to amend "The Poor Rate Assessment Collection Act, 1869."

The object of this Act, as defined by its second section, is to secure that in cases where, under "The Poor Rate Assessment Act of 1869," a commission, abatement, or deduction has been made, or shall hereafter be made, it shall be deemed to have been duly made, and to be an allowance or deduction which the overseers were and are empowered to make under that Act, and no qualification or franchise depending upon rating or upon payment of rates is to be defeated because such allowance or deduction has not been made in pursuance of an agreement in writing, order in writing, or notice in writing, or by reason of the want or insufficiency of any agreement, order, notice, or proceeding, necessary for its validity under the principal Act, or by reason of any informality or defect in its making; provided always, that this Act is not to relieve any overseers from any liability which they have incurred, or may incur, by making an allowance or deduction otherwise than in pursuance of the provisions of the principal Act, or affect any remedy for the recovery of the amount of such allowance or deduction.

ARTIZANS AND LABOURERS' DWELLINGS.

[42 and 43 Victoriæ, cap. 64.—15th August, 1879.]

An Act to Extend the Powers of "The Artizans' Dwellings Act of 1868," *by Provisions for Compensation and Rebuilding.*

Section 1 combines this Act with the Act of 1868 as one Act. Section 2 limits its application to places named in Table A in schedule, viz., the City of London and liberties thereof; the metropolis, exclusive of the city and liberties; boroughs or urban sanitary districts in England, and burghs, &c., in Scotland, and Dublin and other towns in Ireland. Section 3 defines the officer of health as the medical officer of the urban sanitary authority. Section 5 provides that notwithstanding anything in the Act of 1868, the owner of any premises specified in an order of the local authority made under that Act, and requiring him to execute any works or to demolish such premises, may, within three months after service on him of the order, require the local authority in writing to purchase such premises. Section 6, where the owner of any premises has in the manner aforesaid required the local authority to purchase the same, and no agreement is come to between such owner and the local authority as to the amount of the compensation to be paid by the local authority, the amount of the compensation to be paid by the local authority for the premises shall be settled by arbitration in manner provided by this Act. Section 7 provides that in all cases in which the amount of any compensation is, in pursuance of this Act, to be settled by arbitration, the amount of compensation shall be settled by an arbitrator to be appointed and removable by the Local Government Board on a basis provided in this section. Under section 9 where the local authority, on default of the owner of any premises, themselves execute the required works, they may sell the old materials and retain the proceeds towards the expenses incurred

by them in executing such works, and may recover the balance of such expenses from such owner as a debt due from him by action in any court of competent jurisdiction. The expression "court of competent jurisdiction" is, for the purposes of this section, to be read and have effect as if the debt herein referred to were a simple contract debt, and not a debt or demand created by statute. Section 10 provides that any land or premises acquired by any local authority under the Act of 1868, and this Act, may from time to time be sold, let, and disposed of in like manner as any other lands acquired for sanitary purposes by such authority, and not needed for the purposes for which they were acquired; but in cases where the approbation of any Government department is required for any such disposal, then only with that approbation. Section 11 empowers a local authority, where they so think fit, to dedicate any land acquired by them under the authority of the Act of 1868 and this Act as a highway or other public place. By section 12 the Metropolitan Board is empowered to enforce the Act in case local authority fail to do so. By section 14 in the metropolis the local authority or their lessees are empowered to hold all property acquired by them under this Act upon trust to carry into effect some one or more of the purposes thereof. The purposes of this Act in the metropolis are to be deemed to be:—First, the providing by the construction of new buildings, or the repairing or improvement of existing buildings, the labouring classes with suitable dwellings situate within the jurisdiction of the local authority; second, the opening out of closed or partially closed alleys or courts inhabited by the labouring classes, and the widening of the same, by pulling down any building, or otherwise leaving such open spaces as may be necessary to make such alleys or courts healthful. But, subject to the aforesaid trust, the local authority or lessees may from time to time sell, exchange, lease, or otherwise dispose of any premises acquired by them under this Act, provided that if any property acquired by the local authority under this Act shall not within seven years after the acquisition thereof be disposed of by way of absolute sale or of exchange, or by lease for a period of not less than ninety-nine years, or be effectually dealt with by way of public improvement, then and in such case the property so acquired may be sold by the order of one of Her Majesty's Principal Secretaries of State, by public auction or public tender, with full power to fix a reserve price and subject to such terms and conditions as the said Secretary of State shall deem proper, and the proceeds, after deducting expenses, be applied to the services of this Act. By section 18, annual accounts are to be presented by every local authority in the metropolis. By section 19, the local authority in the metropolis may from time to time, with the sanction and approval of one of Her Majesty's Secretaries of State, enter into any contract with any persons or companies for building, repairing, lighting, watering, &c., workmen's dwellings. Section 20 authorises the local authority to make byelaws for regulation of dwelling-houses. By section 21, the expenses of the local authority are to be defrayed by them out of the local rates. Section 22 authorises the Public Works Loan Commissioners, as defined by "The Public Works Loan Act, 1853," or in the metropolis the Metropolitan Board of Works, if they think fit, to lend to any local authority, and any local authority to borrow from the said Commissioners, or in the metropolis from the

Metropolitan Board of Works, such sums as the said authority may require for the purposes of this Act, subject to certain regulations specified in this section. The application of the Act to Scotland and Ireland is provided for in sections 24 and 25.

METROPOLITAN BOARD OF WORKS, INDEMNITY FOR EXPENDITURE ON WATER SUPPLY BILLS.

[42 and 43 Victoriæ, cap. 68.—15th August, 1879.]

An Act to authorise the Metropolitan Board of Works to defray expenses incurred in relation to the promotion of certain Bills in Parliament relating to the supply of water to the Metropolis.

The preamble to this short Act recites that the Metropolitan Board of Works did, during the last session of Parliament, in good faith, but beyond the powers conferred upon them by Parliament, promote two Bills for the supply of Water for certain purposes to the Metropolis. and in the preparation and promotion of the said Bills, and preliminary and incidental thereto, incurred certain expenses, which have been disallowed by the auditor. The only operative section of the Act enables the Board to discharge these liabilities as if they had been incurred under "The Metropolis Management Act, 1855," after the accounts have been duly audited and taxed. The statement of accounts in the schedule shows that the total cost of the promotion of the two Bills was 15,146*l.* 17*s.* 5*d.*

METROPOLITAN BOARD OF WORKS.

[42 and 43 Victoriæ, cap. 69.—15th August, 1879.]

An Act for further amending the Acts relating to the raising of Money by the Metropolitan Board of Works; and for other purposes relating thereto.

The preamble declares the expediency of increasing and extending the powers conferred upon the Board by the Act of 1878 (41 and 42 Vict., cap. 37), of raising money for certain purposes, and of permitting the Board to raise such money, when convenient, by the issue of bills with Treasury consent, for not less than three or more than twelve months, to be repaid out of moneys raised by the creation of consolidated stock under this Act. Section 3 extends the amount which the Act of 1878 authorises to be expended for the purposes of "The Fire Brigade Act of 1865" to 35,000*l.*, instead of 20,000*l.*, and the amount under Plumstead Common Act to 15,000*l.* instead of 10,000*l.* (section 4). Section 6 empowers the Board to expend for tablets on Cleopatra's Needle, on the four sides of the base of the obelisk on the Victoria Embankment, for alteration of the adjoining granite pedestals, and placing sphinxes thereon, and for other permanent work incurred and to be incurred in carrying out the general design, such money as they think fit, not exceeding 1,000*l.* The Board, in order to raise money for the purposes of this section, may from time to time create consolidated stock. Section 9 gives power for the Board to expend money, not exceeding 60,000*l.*, for purposes of 35 and 36 Vict., cap. 163 (Metropolitan Street Improvements), and section 10 authorises the Board to expend, under "The Metropolitan

Street Improvements Act, 1877," up to the 31st December, 1880, a sum not exceeding 1,500,000*l.*, or such further sum as the Treasury may approve: provided that all moneys expended by the Board for these purposes shall not exceed 3,712,507*l.* The Act also extends the powers of the Board to expend money under the Metropolitan Commissioners Acts, to lend money to St. Pancras parish, to lend to boards of guardians, corporations, burial boards, &c., and authorises an extension of loans to the managers of the Metropolitan Asylums District. The remaining provisions of the Act refer to the mode in which these moneys are to be raised, rate of interest, and terms of repayment.

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6. MISCELLANEOUS.

HABITUAL DRUNKARDS.

[42 & 43 Victoria, cap. 19.—3rd July, 1879.

An Act to Facilitate the Control and Cure of Habitual Drunkards.

This Act, which is by section 1 to be known as the "Habitual Drunkards Act, 1879," comes into operation on the 1st of January, 1880. Section 3 defines terms, and section 4 provides for the incorporation of schedules with forms and rules therein as part of the Act. Section 6 provides for the establishment of retreats, licences for which are to be granted to any person, or two or more persons, to keep a retreat for any period not exceeding 13 months. One at least of these persons is to reside on the premises, and a duly qualified medical man is to be employed as the medical attendant, unless the licensee is himself registered as a medical practitioner, in which case he may himself fill this office. Section 7 forbids a licence being granted to any person already licensed to keeping a house for lunatics. Section 8 gives the local authority power to transfer a licence where the licensee is incapable, bankrupt, or dies. Under section 9 an habitual drunkard may be removed by the local authority or inspector of retreats, from a retreat declared by the inspector to be unfit or unsuitable, and notice of such removal being sent to the licensee to the person by whom the last payment for the person's maintenance was made. By section 10 any habitual drunkard desirous of being admitted into a retreat may make application in writing to the licensee for admission, stating the time during which he undertakes to remain in such retreat. Such application should be accompanied by the statutory declaration of two persons to the effect that the applicant is an habitual drunkard within the meaning of this Act. The signature of the applicant to such application is to be attested by two justices of the peace, who are not to attest the signature unless they have satisfied themselves that the applicant is an habitual drunkard within the meaning of this Act, and have explained to him the effect of his application for admission into a retreat and his reception therein, and such justices must state in writing, and as a part of such attestation, that the applicant understood the effect of his application for admission and his reception into the retreat. The applicant after his admission unless discharged or

authorised by licence as hereinafter provided, is not to be entitled to leave such retreat till the expiration of the term mentioned in his application, and he may be detained therein till the expiration of such term; provided that such term shall not exceed the period of 12 calendar months. Every licensee of a retreat under this Act is within two clear days after the reception of any person received therein under the Act required by section 11 to send a copy of his application for admission to the clerk of the local authority and to the Secretary of State. Any person admitted into any retreat under this Act may by section 12 at any time thereafter, be discharged by the order of a justice, upon the request in writing of the licensee of the retreat, if it shall appear to such justice to be reasonable and proper. Section 13 empowers the Secretary of State from time to time to appoint an inspector and assistant inspector of retreats. Licences used under the Act are by section 14 to bear a stamp, fees, which are to be accounted for to local authority. Every retreat is under section 15 from time to time, and at least twice in each year, to be inspected by the inspector or assistant inspector of retreats. The Secretary of State may at any time, on the recommendation of the inspector or assistant inspector of retreats, or in his own discretion, order the discharge of any person detained in any retreat. The inspector of retreats is by section 16 required in the month of January in each year, to present to the Secretary of State a general report, setting forth the situation of each retreat, the names of the licensees, and the number of habitual drunkards who have been admitted and discharged or who have died during the past year, with such observations as he shall think fit as to the results of treatment and the condition of the retreats. The Secretary of State is to lay such report, together with the rules, before Parliament. Section 17 gives the Secretary of State power to make rates for the management of such retreats. Section 18 empowers a judge of the High Court of Justice, on an application *ex parte* at chambers, or a county court judge, within whose district the retreat is situated, by order under his hand, to authorise and direct any person or persons to visit and examine a person detained in a retreat under this Act, and to inquire into and report on any matters which such judge may think fit in relation to the person so detained. The judge, on receiving such report, may, if he shall think fit, order the discharge of any person so detained from any such retreat. Sections 19 to 22 contain the conditions under which leave of absence may be granted to the inmates of a retreat. Sections 23 to 26 refer to offences under the Act. In case of the death of any person detained in any retreat, a statement of the cause of the death of such person, with the name of any person present at the death, is to be drawn up and signed by the principal medical attendant of such retreat, and copies thereof, duly certified in writing by the licensee of such retreat, are, under section 27, to be by him transmitted to the coroner and to the registrar of deaths for the district, and to the clerk of the local authority, and to the person by whom the last payment was made for the deceased, or one at least of the persons who signed the statutory declaration under section 10 of this Act. Every medical attendant who neglects or omits to draw up and sign such statement as aforesaid. and every licensee of a retreat who shall neglect or omit to certify and transmit such statement as aforesaid, is to be deemed

guilty of an offence against this Act. Sections 28, 29, 30, and 31 refer to the penalties chargeable under the Act, and section 30 to the question of appeals.

SALE OF FOOD AND DRUGS ACT.

[42 and 43 Victoriæ, cap. 30.—21st July, 1879.]

An Act to amend "The Sale of Food and Drugs Act, 1875."

The object of this statute is to amend "The Sale of Food and Drugs Act, 1875," and to explain the meaning and effect of section 6 in the recited Act, on which conflicting decisions have been given in England and Scotland. It is now enacted by section 2, that in any prosecution for the sale of adulterated articles it is to be no defence to allege that the purchaser, having bought only for analysis, was not prejudiced by such sale. Neither is it to be a good defence to prove that the article, though defective in nature, or in substance or quality, was not defective in all three respects. By section 3, an officer, inspector, or constable may obtain a sample of milk at the place of delivery, to submit the same to an analyst. Section 4 enacts that the seller or consignor, or any person or persons intrusted by him for the time being with the charge of such milk, if he shall refuse to allow such officer, inspector, or constable to take the quantity which such officer, inspector, or constable shall require for the purpose of analysis, shall be liable to a penalty not exceeding 10*l.* Any street or open place is, under section 5, to come within the meaning of the 17th section of the principal Act. Section 6 enacts that in determining where an offence has been committed under the 6th section of the Act of 1875, a reduction is to be allowed to the extent of 25 degrees under proof for brandy, whisky, or rum, and 35 degrees for gin. Every liberty having a separate Court of Quarter Sessions, except a liberty of a Cinque Port, is, by section 7, to be deemed to be a county; and Quarter Sessions of borough are not, by section 8, to contribute towards the expense of a county analyst. Section 9 makes a provision as to boroughs with separate police. The last section in the new Act contains a special provision as to prosecutions under the principal Act, and notwithstanding section 20 of the principal Act, it is now enacted that the summons to appear before the magistrate is to be served upon the person charged within a reasonable time, and, in case of a perishable article, not exceeding 28 days from the purchase. The particulars of the offence and the name of the prosecutors are to be stated in the summons, and the same is not to be made returnable in less than seven days from the service on the person summoned.

ABSTRACTS OF PARLIAMENTARY AND OTHER OFFICIAL DOCUMENTS.

1. FINANCE, TAXATION, AND CURRENCY.

NATIONAL REVENUE AND EXPENDITURE.—The subjoined Tables show the gross PUBLIC REVENUE and EXPENDITURE of the United Kingdom in the year ended 31st March, 1879:—

SOURCES OF REVENUE:—	£
Customs	20,316,000
Excise	27,400,000
Stamps	10,670,000
Land Tax and House Duty	2,720,000
Property and Income Tax	8,710,000
Post Office	6,240,000
Telegraph Service	1,335,000
Crown Lands (Net)	410,000
Interest on Advances for Local Works and on Purchase Money of Suez Canal Shares	1,091,751
Miscellaneous	4,223,220
Total Income	£83,115,971
Income for year estimated in Budget	£83,230,000
Deficiency of Income under Budget Estimate	£114,029

BRANCHES OF EXPENDITURE:—	£
Permanent Charge of Debt:—	
Interest (except as below) and Management of the Debt	21,516,372
Terminable Annuities	5,711,318
Interest of Exchequer Bills, &c.	138,434
New Sinking Fund	633,876
Interest, &c., not forming part of the above Permanent Charge, viz.:—	
Interest on Loans for Local Purposes	314,932
Interest on Supply Exchequer Bonds	129,375
Interest and Principal of Exchequer Bonds (Suez)	199,876
Other Charges on Consolidated Fund:—	
Civil List	407,108
Annuities and Pensions	313,666
Salaries and Allowances	94,459
Courts of Justice	637,800
Miscellaneous Services (Ordinary)	171,389
Voted Supply Services:—	
Army Services (including Army Purchase)	17,653,473
" " Charges on account of Troops in India	1,080,000
Abyssinian Expedition	17,865
Navy Services	11,962,316
War in South Africa (Vote of Credit)	1,500,000
Miscellaneous Civil Services	14,974,760
Customs and Inland Revenue Departments	2,791,169
Post Office	3,273,000
Telegraph Service	1,109,000
Post Office Packet Service	777,600
Total Ordinary Expenditure	£85,407,788
Estimated on Budget and Supplementary Votes	£86,241,110
Less than Estimates by	833,322

CUSTOMS AND EXCISE.—The Produce of the two great sources of PUBLIC REVENUE, CUSTOMS and EXCISE, which together contribute considerably more than One-Half to the NATIONAL INCOME of the UNITED KINGDOM, was as follows in the financial year ending March 31, 1879:—

CUSTOMS DUTIES on Articles usually contributing not less than £1,000 Annually.	Gross Receipts. £	s.	d.
Beer, Spruce	2,245	7	7
—— Of other Sorts, including Mum	1,568	19	1
Chicory	66,738	17	10
Cocoa, Cocoa Husks, and Chocolate	44,670	12	9
Coffee	212,001	19	4
Currants	315,274	8	11
Figs	20,397	12	2
Plate, Gold, and Silver	5,853	4	10
Plums, Dried or Preserved, French Plums and Prunelloes	4,070	13	9
Prunes	7,677	19	6
Raisins	161,814	3	6
Spirits, Colonial and Foreign:—			
Rum	2,562,301	13	10
Brandy	2,003,037	1	7
Geneva	111,752	4	2
Of other sorts	658,967	2	11
Tea	4,169,253	3	8
Tobacco and Snuff	8,589,680	10	3
Wine	1,469,710	2	5
All other Articles	2,660	1	7
Charges on deliveries from the Bonded Warehouses	37,318	4	7
	£20,446,994	4	8
Duties collected at the Isle of Man	52,258	16	3
Total Customs	£20,499,253	0	11
Drawbacks, Repayments, &c.	151,188	17	5
Net Produce	£20,348,064	3	6

EXCISE DUTIES.	Gross Receipts. £	s.	d.
Chicory	2,114	11	8
Licences, viz.:			
Auctioneers, Appraisers, &c.	80,642	0	0
Beer, Cider, and Perry	388,242	7	10½
Brewers	418,085	10	6
Dog	422,235	2	6
Establishment, viz.:			
Armorial Bearings	81,854	17	0
Carriages	555,749	2	0
Male Servants	146,061	15	0
Game	191,536	0	0
Gold and Silver Plate	43,071	4	9
Gun	80,705	0	0
Hawkers and Pedlars	25,607	10	0
Maltsters	14,336	15	0
Medicine Vendors	4,752	0	0
Pawnbrokers	32,887	10	0
Refreshment Houses	9,230	16	3
Spirit (Distillers, Dealers, and Publicans)	845,775	0	4
Tobacco	88,168	7	3¼
Wine and Sweets	211,157	1	6
Other than the foregoing	7,772	18	7¾
Malt	7,954,580	8	1½
Sugar used in Brewing	640,699	2	2½
Railways	774,892	2	8¼
Spirits	14,855,007	2	3
Total Excise	£27,875,164	5	7
Deductions on account of Drawbacks, Discounts, Parliamentary Allowances, Repayments, &c.	£689,143	8	11
Net Produce	£27,186,020	16	8

STAMPS.—The following table gives the gross receipts from Stamps in the United Kingdom during the year ended the 31st of March, 1879:—

Heads of Duty.	Gross Receipts. £	s.	d.
Probates of Wills and Letters of Administration	2,440,179	17	3
Legacies and Successions	3,319,376	4	3½
Total Probate and Legacy Duties	5,759,556	1	6½
Deeds and other Instruments, not included under the following heads	2,059,869	18	5½
Bills of Exchange	731,524	14	9
Bankers' Notes	1651	5	0
Composition for the Duties on the Bills and Notes of the Banks of England and Ireland, and of Country Bankers	135,497	1	8
Cards	13,685	5	9
Gold and Silver Plate	82,767	0	4
Licences and Certificates	144,640	0	0
Marine Insurances	113,602	18	9
Medicine	132,385	19	4½
Patents for Inventions	173,564	0	0
Receipts, Drafts and other 1*d.* Stamps	834,017	8	7
Total Stamps, exclusive of Fee Stamps	10,181,761	14	2½
Fee Stamps, viz.:			
Admiralty Court (Ireland)	348	3	6
Bankruptcy Court (England)	89,293	5	6

Heads of Duty.	Gross Receipts. £	s.	d.
Bankruptcy Court (Ireland)	5,866	18	0
Chancery Fund (Ireland)	371	13	1½
Chimney Sweepers' Certificate	87	10	0
Civil Service Commission	5,933	17	0
Coal Mines Regulation	583	0	0
Companies Registration	16,112	11	6
Copyhold, &c., Commission	6,511	17	6
County Courts (Ireland)	29,778	16	1
Courts of Survey—Merchant Shipping	9	0	0
Crown Office	1,455	1	2
Explosive Substances	220	0	0
Great Seal Patent	158	0	0
Judgments Registry Fund (Ireland)	3,086	9	0
Judicature (England)	224,606	14	7
,, (Ireland)	17,649	5	8
,, Probate Court (England)	133,106	0	0
Judicature Probate Court (Ireland)	18,495	14	6
Land Registry (England)	883	4	0
Law Courts (Scotland)	6,075	0	0
London Gazette	30,400	19	0
Lord Chancellor's Presentation	411	0	0
Naturalisation	257	10	0
Patent Hearings and Disclaimers	315	15	0
Pedlars' Certificates (Metropolitan Police District)	1,424	1	6
Police Courts (Metropolitan Police District)	8,779	13	0
Public Record	552	0	0
Railway Commission	180	4	0
Record of Title (Ireland)	41	10	0
RegisterHouse (Scotland)	44,573	16	10
Registration of Deeds (Ireland)	14,613	15	11
Warrants for Letters Patent under the Great Seal	453	10	0
Total Fee Stamps	£662,635	16	4½
Total Stamps	£10,844,397	10	7
Drawbacks, Discounts, Allowances, &c.	£222,876	13	7
Net Produce	£10,621,520	17	0

NATIONAL REVENUE FROM 1858 TO 1879.—The following table shows the total gross Revenue in each of the financial years ended March 31, from 1858 to 1879, inclusive, and the proportion of receipts per head of population of the United Kingdom:—

Year ended March 31.	Revenue. £	Proportion per head of Population. £	s.	d.
1858	67,881,513	2	8	3
1859	65,477,284	2	6	3
1860	71,089,669	2	9	10
1861	70,283,674	2	8	11
1862	69,674,479	2	8	3
1863	70,603,561	2	8	4
1864	70,208,964	2	7	7
1865	70,313,437	2	7	0
1866	67,812,292	2	5	1
1867	69,434,568	2	5	8
1868	69,600,218	2	5	6
1869	72,591,991	2	6	8
1870	75,434,252	2	8	4
1871	69,945,220	2	4	5
1872	74,708,314	2	7	3
1873	76,608,770	2	8	2
1874	77,335,657	2	8	2
1875	74,921,873	2	6	3
1876	77,131,693	2	7	1
1877	78,565,036	2	7	6
1878	79,763,298	2	7	8
1879	83,115,972	2	9	2

NATIONAL EXPENDITURE FROM 1858 to 1879.—The following table shows the total amount of National Expenditure for each of the financial years ended March 31, from 1858 to 1879, inclusive, and the proportion of receipts per head of population of the United Kingdom:—

Year ended March 31.	Expenditure. £	Proportion per Head of Population. £	s.	d.
1858	68,128,859	2	8	5
1859	64,663,882	2	5	8
1860	69,502,289	2	8	8
1861	72,792,059	2	10	8
1862	71,116,485	2	9	11
1863	69,302,008	2	8	2
1864	67,056,286	2	6	0
1865	66,462,207	2	5	0
1866	65,914,357	2	4	2
1867	66,780,396	2	4	0
1868	71,236,242	2	6	6
1869	72,069,961	2	8	6
1870	68,864,752	2	4	0
1871	69,548,539	2	4	3
1872	71,490,020	2	5	0
1873	70,714,448	2	4	5
1874	76,466,510	2	7	7
1875	74,328,040	2	5	10
1876	76,621,773	2	6	10
1877	78,125,227	2	7	2
1878	82,403,495	2	9	3
1879	85,407,789	2	10	6

NATIONAL DEBT.—The following table shows the total amount of the Funded Debt of the United Kingdom on the 31st of March, 1878, the Debt created and reduced in the year ended 31st March, 1879, and the balance at the latter date:—

	£	s.	d.
Total Funded Debt on 31st March, 1878 .	710,843,007	10	0
Debt created in year ended 31st March, 1879	146,023	9	5
Total	710,989,030	19	5
Debt reduced in year ended 31st March, 1879	1,558,437	6	5
Balance, being total Funded Debt on 31st March, 1879 . . .	709,430,593	13	0

The following table shows the state of the above Public Funded Debt of the United Kingdom on 31st March, 1879:—

Capital Funded Debt:— Great Britain.	Capitals. £	s.	d.
New Annuities, at 2½ per cent.	3,756,481	2	1
Exchequer Bonds, created per 16 Vict., c. 23, at 2½ per cent.	418,300	0	0
Total, at 2½ per cent .	£4,174,781	2	1
Debt due to the Bank of England, at 3 per cent.	11,015,100	0	0
Consolidated Annuities, at 3 per cent.	389,343,037	12	4
Reduced Annuities, at 3 per cent. . . .	92,547,310	18	6
New Annuities, at 3 per cent.	178,351,525	16	7
Total, at 3 per cent. .	£671,256,974	7	5
New Annuities, at 3½ per cent.	225,746	6	4
Total, Great Britain	£675,657,501	15	10

Ireland.	£	s.	d.
New Annuities, at 2½ per cent.	2,330	0	0
Debt due to the Bank of Ireland, at 3 per cent.	2,630,769	4	8
Consolidated Annuities, at 3 per cent..	4,700,036	6	2
Reduced Annuities, at 3 per cent. . . .	131,596	16	5
New Annuities, at 3 per cent.	26,308,359	9	11
Total, at 3 per cent. .	£33,770,761	17	2
Total, Ireland . . .	£33,773,091	17	2
Total Capital of the Funded Debt of the United Kingdom, on 31st March, 1879 .	709,430,593	13	0

CHARGES ON NATIONAL DEBT.—The following table shows the annual charges on the Funded Debt of the United Kingdom, in the year ended the 31st of March, 1879:—

	Annual Charge. £	s.	d.
Funded Debt	21,305,489	8	0
Terminable Annuities:			
Annuities, per 18 Vict., c. 18, expiring 5 April, 1885. . .	116,000	0	0
Annuities, per 23 & 24 Vict., c. 109, and subsequent Acts, expiring 5 April, 1885 (Fortifications) . .	589,722	0	0
Annuity, per 26 Vict., c. 14, expiring 5 April, 1885. . .	9,983	7	3
Annuities, per 32 & 33 Vict., c. 59, and 29 Vict., c. 5, expiring at various dates in 1885 (payable yearly)	3,617,845	0	0
Annuities, per 35 & 36 Vict., c. 68, expiring at various dates in 1885 (payable yearly), "The Military Forces Localization Act". . .	278,814	0	0
Red Sea and India Telegraph Company's Annuity, 25 & 26 Vict., c. 39, expiring 4th August, 1908 .	36,000	0	0
Sinking Fund Annuity on New 2½ per Cents., per 33 & 34 Vict., c. 71, s. 69 .	6,906	14	7
Annuities for Terms of Years, per 10 Geo. 4, c. 24, and 3 Will. 4, c. 14, expiring at various periods	36,881	12	6
Life Annuities, per 10 Geo. 4, c. 24, 3 Will. 4, c. 14, 16 & 17 Vict. c. 45, and 27 & 28 Vict. c. 43 . . .	926,596	9	10
Exchequer Tontine Annuities, per 29 Geo. 3	15,384	6	5

	Annual Charge. £ s. d.
Management:	
Great Britain . . .	212,054 11 10
Ireland	9,297 0 1
Total amount of charge on 31st March, 1878.	27,160,974 10 6
Charges on Debt created in the year ended 31st March, 1879:—	
Funded Debt:—	
Capital created per Act 40 & 41 Vict., c. 30, "The Telegraphs (Money) Act, 1877."	4,380 14 1
Terminable Annuities:—	
Annuities (expiring 1885) granted per 35 & 36 Vict., c. 68, "The Military Forces Localization Act." .	100,017 0 0
Annuities for Terms of Years, per 10 Geo. 4, c. 24	417 16 6
Life Annuities, per 10 Geo. 4, c. 24, 16 & 17 Vict., c. 45, and 27 & 28 Vict., c. 43	66,371 12 0
Management increased .	81 4 1
Total Charge on Debt created in the year ended 31st March, 1879	171,268 6 8
Total Charge . . .	£27,332,242 17 2

Poor Rate.—The poor rate return for the year ended at Lady Day, 1878, shows that the sum raised by poor rates in England during the year was 12,585,677*l.*; the receipts in aid, inclusive of 547,351*l.*, the Treasury subventions and payments for Government property, amounted to 904,035*l.*, forming a total receipt of 13,489,712*l.* The sum of 5,281,172*l.*, or more than one-third of the whole poor rate now levied, is expended for "other purposes" than the relief of the poor. The figures which represent for 1877–78 the whole expenditure out of the rates are these:—Relief to the poor, 7,688,650*l.*; law charges, 34,135*l.*; purposes partly connected and partly unconnected with relief, 611,340*l.*; purposes wholly unconnected with relief, 5,281,172*l.*; total, 13,561,297*l.* The expenditure unconnected with relief to the poor which is entirely foreign to the object originally contemplated in the enactment of the rate, has greatly increased since the passing of the Poor Law Amendment Act in 1834, in consequence of the imposition of new and the augmentation of old charges. The heaviest item in the present returns is the disbursement in respect of the "county, borough, and police rate," which amounts to 3,457,952*l.* The contributions by the overseers to the rural sanitary authorities and to School Boards are paid out of the poor rate and are shown in the returns. The contributions to the rural sanitary authorities amount to 117,298*l.*, and to School Boards to 429,139*l.*

The Estimates of 1879–80.—The following are the Budget Estimates of the Chancellor of the Exchequer:—

Expenditure.

Consolidated Fund charges	£30,620,000
Army	15,645,700
Home charges of Forces in India	1,100,000
Navy	10,586,894
Civil Services	15,084,851
Customs and Inland Revenue .	2,865,383
Post Office	3,368,825
Telegraph Service	1,115,195
Packet Service	766,725
Total expenditure . . .	£81,153,573

Revenue.

Customs	£20,000,000
Excise	27,270,000
Stamps	10,780,000
Land Tax and House Duty . .	2,700,000
Property and Income Tax . .	9,250,000
Post Office	6,250,000
Telegraph Service	1,340,000
Crown Lands	390,000
Interest on advances to local works, &c.	1,175,000
Miscellaneous	3,900,000
Total revenue	£83,055,000

Coinage of the Royal Mint.—The amount of gold, silver, and copper moneys coined at the Royal Mint in each year from 1860 to 1878 was as follows:—

Years.	Gold.	Silver.	Copper.
	£	£	£
1860	3,121,709	218,403	37,990
1861	8,190,170	209,484	273,578
1862	7,836,413	148,518	352,800
1863	6,997,212	161,172	151,648
1864	9,535,597	535,194	18,069
1865	2,367,614	501,732	57,493
1866	5,076,676	493,416	50,624
1867	496,397	193,842	33,301
1868	1,653,384	301,356	16,328
1869	7,372,204	76,428	20,832
1870	2,313,384	336,798	32,704
1871	9,919,656	701,514	7,616
1872	15,261,442	1,243,836	47,413
1873	3,384,568	1,081,674	46,218
1874	1,461,565	890,604	65,632
1875	243,264	594,000	69,813
1876	4,711,459	234,232	61,450
1877	981,468	420,948	51,146
1878	1,158,780	613,998	17,024

NATIONAL DEBT.—The following Table shows the total amount of the National Debt at the end of each financial year from 1863 to 1879 inclusive:—

Financial Years ended 31st March	Funded Debt. Capital of Unredeemed Funded Debt, inclusive of Unclaimed Stock and Dividends.	Funded Debt. Estimated Capital of Terminable Annuities (Computed in 3 per Cent. Stock).	Amount of Unfunded Debt.	Total Amount of National Debt, inclusive of Unclaimed Stock and Dividends.
	£	£	£	£
1863	787,422,928	20,716,727	16,495,400	824,635,055
1864	781,712,401	26,442,428*	13,136,000	821,290,829
1865	780,202,104	25,408,370	10,742,500	816,352,974
1866	773,941,190	25,435,034	8,187,700	807,563,924
1867	770,188,625	27,521,513	7,956,800	805,666,938
1868	741,844,981†	56,816,803†	7,911,100	806,572,884
1869	741,112,640	55,471,424	8,896,100	805,480,164
1870	741,514,681	53,130,380	6,761,500	801,406,561
1871	732,043,270	57,969,885	6,091,000	796,104,155
1872	731,756,962	55,749,070	5,155,100	792,661,132
1873	727,374,082	53,558,580	4,829,100	785,761,762
1874	723,514,005	51,289,640	4,479,600	779,283,245
1875	714,797,715	55,311,671	5,239,000	775,348,386
1876	713,657,517	51,911,227	11,401,800‡	776,970,544
1877	712,621,355	49,308,558	13,943,800§	775,873,713
1878	710,843,007	46,335,589	20,603,000‖	777,781,596
1879	709,430,593	42,778,147	25,870,100‡	778,078,840

* In 1864 the sum of 5,000,000*l.* of the Unredeemed Funded Debt was cancelled, and a Terminable Annuity created in lieu thereof, under the 26th Vict., cap. 25, sect. 2.

† Alterations in amounts of Capital of Unredeemed Funded Debt and of Terminable Annuities chiefly caused by the conversion, in 1868, of Stock into Terminable Annuities.

‡ Including Bonds (Suez Canal) to the amount of 4,000,000*l.* in 1876.

§ Do. do. do. 3,990,000*l.* in 1877.

‖ Do. do. do. 3,929,200*l.* in 1878.

EXCHEQUER BALANCES.—The following Table shows the Balances in the Exchequer at the end of each Financial Year from 1863 to 1879 inclusive:—

Financial Years ended 31st March.	Amount.
	£
1863..	7,263,839
1864..	7,352,548
1865..	7,690,922
1866..	5,851,314
1867..	7,294,151
1868..	4,781,846
1869..	4,707,258*
1870..	8,606,647
1871..	7,023,435
1872..	9,342,652
1873..	1,992,705
1874..	17,442,854
1875..	6,265,322
1876..	5,119,587
1877..	5,988,650
1878..	6,243,389
1879..	6,915,756

* Including 1,000,000*l.* advanced by the Bank of England in aid of Ways and Means.

MISCELLANEOUS REVENUE.—The following is a detailed statement of the amount received into the Exchequer, in the year ended the 31st March, 1879, under the head of Miscellaneous Revenue:—

	£	s.	d.
Small Branches of the Hereditary Revenue . . .	49,139	14	0
Bk. of Eng. (Profits of Issue)	138,578	0	0
Receipts Nav. & Mil. Depts.	782,417	8	1
From Indian Revenues .	1,210,027	0	0
Ashantee Expedition . .	1,003	17	3
Imp. Ottoman Loan of 1855	30,700	0	0
Army Purchase Commisn.	661	6	4
Receipts by Civil Departs.	1,217,709	4	9
Ditto Revenue Departs. ...	393,368	6	10
Post Office Savings Bk. Dep.	214,434	5	6
Net Profit on Post Office Savings Banks	147,116	16	3
Income of Gazettes . . .	7,234	12	6
Savings on Grants of Parliament, &c.	1,873	5	1
Treasury Chest	250	0	0
Isle of Man	9,384	17	3
Greek Loan	7,932	9	3
Conscience Money . . .	6,732	10	3
Rent of Guano Islands . .	2,095	12	9
Casual Receipts	2,561	4	8
Total	£4,223,220	10	6

BANK RATE.—The following Table shows the Average Minimum Rate per cent. of Discount charged by the Bank of England in each Month, in each Year from 1865 to 1878:—

Months.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
January	5½	8	3½	2	3	3	2½	3	4½	3¾	4½	4⅝	2	3¼
February	5	7½	3	2	3	3	2½	3	3½	3½	3½	4	2	2
March	4½	6½	3	2	3	3	3	3	3½	3½	3½	3⅞	2	2⅛
April	4	6	3	2	4	3	2¾	3¾	4	3½	3½	2⅞	2	3
May	4¼	9¾	3	2	4½	3	2½	4⅝	5¼	4	3½	2	2	3
June	3¾	10	2½	2	4	3	2⅝	3½	6½	2¾	3½	2	3	2½
July	3¼	10	2½	2	3½	3½	2½	3¾	4⅝	3	3	2	2¼	3½
August	4	8½	2	2	2¾	5	2	3½	3¼	3⅝	2¼	2	2⅛	4⅝
September	4	5	2	2	2½	3¼	2⅝	3⅝	3¼	3	2	2	3	5
October	7	4½	2	2	2½	2½	2⅝	5⅞	6	3½	3¼	2	4½	5½
November	6½	4	2	2¼	3	2½	4½	6¼	8⅛	4½	3½	2	4⅞	5⅝
December	6½	3¾	2	3	3	2¼	3¼	5⅜	5¼	6	3	2	4	5
Average for the Year	4⅜	7	2½	2¼	3¼	3⅛	2⅞	4⅛	4¾	3¾	3¼	2⅝	2⅞	3¾

PRICE OF STOCK.—The following Table shows the average price per 100*l.* of the Three per Cent. Consolidated Stock of the Public Funds of the United Kingdom in each Month, in each Year from 1865 to 1878:—

Months.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.
January	89½	87⅛	90⅜	92⅝	92⅞	92⅜	92⅜	92⅝	92⅛	92⅛	92⅜	93⅞	95¼	95 5/16
February	89¼	87⅛	90⅝	93⅛	93	92½	91½	92¼	92⅜	92⅛	92 13/16	94 1/16	95 13/16	95 9/16
March	89	87	91	93⅛	92⅞	92⅞	92	92¾	92⅝	92	93	94 3/16	96 7/16	95¼
April	91	86⅛	90⅜	93⅛	93⅛	93⅜	93	92¼	93¼	92½	93½	94 15/16	95⅝	94 15/16
May	90⅜	86¼	92⅛	94⅝	93	94⅛	93½	93⅛	93⅜	93⅛	94	96	94¼	96 9/16
June	89⅜	86⅛	94⅛	94⅜	92⅝	92¼	92	92⅜	92¼	92⅜	93	94¼	94½	95⅝
July	90	87⅛	94⅛	94⅝	93	91⅛	93¼	92½	92¼	92⅝	94¼	95¼	94½	95 11/16
August	89¾	88¼	94⅛	94	93	90¾	93½	92½	92¼	92⅝	94¾	96 7/16	95⅛	94 11/16
September	89¾	89¼	94⅛	94⅛	92⅞	92	93⅛	92⅜	92⅛	92⅝	94⅜	95⅜	95½	94 13/16
October	88¾	89⅜	94⅛	93⅜	92¼	92¾	92¼	92⅛	92⅝	91¾	94 3/16	95 7/16	95¾	94¼
November	89¼	89⅜	94⅛	93⅜	92¼	93¼	92⅜	92⅜	92⅝	93⅜	94⅝	95¼	96 1/16	95 11/16
December	87⅞	89	92¼	92⅜	92⅛	97⅜	92¼	91⅝	92	91⅝	93⅞	94	95 5/16	94⅝
Average for the Year	89½	88	93	93⅞	92⅛	92½	92¼	92⅛	92½	92½	93¼	95	95⅜	95 3/16

BULLION AND SPECIE.—The total value of the registered imports of gold and silver coin and bullion in the year 1878 was 32,421,490*l.* against 37,152,799*l.* in 1877, being a decrease of 4,731,309*l.* The total value of the quantities entered at the Custom House for exportation during the same periods was 26,686,546*l.*, in the year 1878, against 39,810,619*l.* in 1877, being a decrease of 13,124,073*l.*

THE ARMY PURCHASE COMMISSIONERS.—The appropriation account of the sum granted by Parliament to the Army Purchase Commissioners in 1877–78 shows that of 505,000*l.*, the total sum granted, 504,833*l.* 4*s.* 11*d.* was expended, leaving a surplus of 166*l.* 15*s.* 1*d.* to be surrendered.

JUDICIAL EXPENSES.—From the official account which has been presented to Parliament it appears that during the year ended the 31st March, 1878, the total receipts of the Chancery Division of the High Court of Justice were 199,413*l.* of which 81,071*l.* were received for stamps in lieu of fees; being 16,768*l.* less than in the preceding year. The expenditure was 309,870*l.*, leaving a deficiency of 110,456*l.* The salaries of the Judges amounted to 61,468*l.* being 14,623*l.* in excess of the previous year; but this increase is owing to the fact that the Judges of Appeal were only paid from the 1st of November, 1876, under the Judicature Act, and that Judge Fry has been recently appointed. Retiring annuities of Judges, including pensions of three late Lord Chancellors, at 5,000*l.* per annum each, amounted to 19,344*l.* The total receipts of the Court of Bankruptcy in the same period were 119,816*l.*, and the expenditure 132,251*l.*, being a deficiency of 12,435*l.*

THE ARMY ESTIMATES.—The estimates of the effective and non-effective services for 1879–80 showed a net decrease of 2,145,600*l.*, the figures being—for 1879–80 15,645,700*l.* against 17,791,300*l.* for 1878–79. The latter sum, however, includes the supplementary votes of 2,195,500*l.* Deducting the estimated Exchequer extra receipts (570,503*l.*), the net charge for army services for 1879–80 is 15,075,200*l.* The heads of the estimates in which the principal items of decrease occur are the pay of the general staff, regimental pay and allowances, and other charges, 344,000*l.*; provisions, forage, fuel, transport, and other services, 883,000*l.*; supply, manufacture, and repair of warlike and other stores, 882,500*l.*; superintending establishment of, and expenditure for works, buildings, and repairs at home and abroad, 204,330*l.* The decrease under these heads, however, is due chiefly to the absence from the present estimates of the supplementary estimates by which last year's accounts were swelled. The chief increased items in the estimates are 141,300 for out-pensions and 47,800*l.* for retired full-pay, half-pay, pensions, and gratuities. The total estimates for the effective services is 13,019,900*l.*, and for the non-effective 2,625,800*l.* The numbers of the army show an increase of 173 men over last year; the figures being—1878–79. 135,452; and 1879–80, 135,625. A statement has also been issued showing the variation of the numbers of the British forces, and giving explanations of the differences between the amounts proposed in the estimates for 1879–80 and the amounts voted for 1878–79. Another Parliamentary paper has been issued, stating that an estimate of 1,100,000 will be required to be voted in aid of the army estimates to provide for the home charges incurred for the regular forces serving in India for the year ending March 31, 1880. Extra receipts from the Indian Government to meet the charge are estimated at 1,100,000*l.*

THE MINT.—The annual report for 1878 of the Deputy Master of the Mint states that in consequence of the continued depression of trade the demand for coin during the year was again below the average, and for the first time since 1870 the Mint was able itself to meet all demands for Imperial coin, and to undertake the execution of the Colonial coinages required, without having recourse to contracts with private firms. The total number of pieces struck at the Mint was 24,491,230, as against 30,131,130 in 1877, and their value, real or nominal, 2,785,790*l.* 6*s.* 2½*d.* The total number of British coins struck during the year was 22,823,230, and their value as follows:—Gold, 2,132,245*l.* 10*s.*; silver, 614,426*l.* 11*s.* 10*d.*; bronze, 18,664*l.* 1*s.* 0½*d.*; making a total of 2,765,336*l.* 2*s.* 10½*d.* The coinage of gold, as will be seen from the above statement, but slightly exceeded 2,000,000*l.* of which one-half consisted of half-sovereigns, notwithstanding that the number of sovereigns from the Sydney and Melbourne branches of the Mint received by the Bank of England during the year was only 2,773,000*l.*, or less by nearly a million than the amount received in 1877. "It is clear, therefore," the report says, "that the smallness of the demand on the Mint for gold coin which has now continued for three years is due to the general contraction of trade rather than to any large and increasing supply of sovereigns coined in Australia." Among the works executed by the Mint may be mentioned that of a bronze coinage for Cyprus. The total number of pieces struck was 650,000, of which 250,000 were piastres, 250,000 half-piastres, and 150,000 quarter piastres. The coins bear the effigy of Her Majesty, with the words, "Victoria, Queen."

2. GENERAL COMMERCE AND NAVIGATION.

NAVIGATION RETURNS.—The subjoined table shows the tonnage of British and Foreign vessels (sailing and steam) entered and cleared, *with cargoes*, at ports in the United Kingdom, from and to foreign countries and British Possessions, from 1860 to 1878:—

Years.	Entered.			Cleared.		
	British.	Foreign.	Total.	British.	Foreign.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1860 ..	5,760,537	4,294,444	10,054,981	6,358,917	4,424,020	10,782,937
1861 ..	6,307,737	4,297,442	10,605,179	6,841,808	4,477,996	11,319,804
1862 ..	6,591,654	4,149,154	10,740,808	7,400,454	4,309,395	11,709,849
1863 ..	7,302,039	3,835,319	11,137,358	7,961,008	3,926,797	11,887,805
1864 ..	7,813,179	3,488,931	11,302,110	8,596,234	3,576,540	12,172,774
1865 ..	8,356,914	3,801,780	12,158,694	9,056,729	3,770,422	12,827,151
1866 ..	9,215,820	4,061,370	13,277,190	9,954,147	4,055,947	14,010,094
1867 ..	9,356,814	3,984,634	13,341,448	10,586,058	4,261,523	14,847,581
1868 ..	9,572,450	4,279,207	13,851,657	10,902,171	4,570,818	15,473,019
1869 ..	10,042,182	4,444,518	14,486,700	11,313,757	4,603,227	15,916,984
1870 ..	10,308,952	4,601,790	14,910,742	11,934,087	4,779,851	16,713,938
1871 ..	11,250,120	5,205,222	16,455,342	13,396,583	5,650,872	19,047,455
1872 ..	12,139,805	5,766,135	17,905,940	13,574,471	5,673,881	19,248,352
1873 ..	12,474,912	6,320,145	18,795,057	13,653,030	5,486,335	19,139,365
1874 ..	12,751,128	6,330,278	19,081,406	14,010,786	5,742,701	19,753,487
1875 ..	12,852,351	6,187,577	19,039,928	14,454 989	5,958,750	20,413,739
1876 ..	13,672,122	7,354,549	21,026,671	15,201,602	6,309,111	21,510,713
1877 ..	14,894,448	7,237,176	22,131,624	15,358,033	5,837,323	21,195,356
1878 ..	14,513,688	6,804,558	21,318,246	15,783,488	5,798,200	21,581,688

IMPORTS INTO THE UNITED KINGDOM.—The following table gives the quantities of the chief articles imported into the United Kingdom in the year ended the 31st of December, 1878:—

Articles.		Quantity.
Animals:—		
Oxen, Bulls, Cows, and Calves	No.	253,462
Sheep and Lambs	,,	892,125
Bacon and Hams	Cwts.	4,295,151
Beef	,,	729,123
Bones, except Whalefins	Tons	90,797
Brimstone	Cwts.	874,959
Bristles	Lbs.	2,502,343
Butter	Cwts.	1,796,517
Candles, Stearine	,,	110,036
Caoutchouc	,,	149,724
Cheese	,,	1,968,859
Clocks	No.	734,022
Cocoa	Lbs.	18,021,626
Coffee	Cwts.	1,269,677
Corn, Wheat	,,	49,906,484
—— Barley	,,	14,156,919
—— Oats	,,	12,774,420
—— Maize	,,	41,673,906
—— Other kinds	,,	4,084,508
—— Flour of Wheat	,,	7,828,079
—— —— Of other kinds.	,,	867,364
Total of Corn	,,	131,291,680
Cotton, Raw	,,	11,967,679
Dyeing (or Tanning) Stuffs:—		
Cochineal, Granilla, and Dust	Cwts.	30,827
Cutch and Gambier	Tons	28,613
Garancine	Cwts.	2,582
Indigo	,,	65,503
Madder	,,	21,859
Madder Root	,,	11,202
Shumach	Tons	13,923
Valonia	,,	28,677
Eggs	No.	783,714,720
Fish	Cwts.	995,923
Flax and Hemp:—		
Flax, Dressed and Undressed	,,	1,278,906
Tow or Codilla of Flax and Hemp	,,	333,917
Hemp and other like Substances (except Jute), Dressed and Undressed	,,	1,219,642
Jute	,,	4,242,382
Fruits:—		
Currants	,,	1,087,266
Raisins	,,	450,329
Oranges and Lemons	Bush.	3,430,176
Glass of all Kinds	Cwts.	1,222,086
Guano	Tons	177,793
Gutta-percha	Cwts.	32,912
Hair:—		
Goats' Hair or Wool	Lbs.	7,060,909
Hides, Tanned and Untanned	Cwts.	1,613,522
Hops	,,	168,834

Articles.		Quantity.
Lard	Cwts.	908,605
Leather Gloves	Pairs	12,725,256
Meat, Salted or Fresh	Cwts.	145,981
Preserved, other than Salted	,,	439,900
Metals:—		
Copper Ore and Regulus	Tons	136,657
Copper, Unwrought and part Wrought, and old Copper	Cwts.	858,040
Iron, in Bars	Tons	102,811
Iron and Steel Wrought or Manufactured	Cwts.	2,109,885
Lead, Pig and Sheet	Tons	100,141
Tin, in Blocks, Ingots, Bars, or Slabs, and Regulus	Cwts.	332,885
Zinc, Crude, in Cakes	Tons	32,722
—— Manufactures	Cwts.	324,155
Oil, Fish	Tuns	20,656
— Palm	Cwts.	670,797
— Cocoa Nut	,,	92,915
— Olive	Tuns	20,615
— Seed	,,	12,863
— Turpentine	Cwts.	324,145
Oil Seed Cake	Tons	201,325
Paper, for Printing or Writing	Cwts.	222,648
Petroleum, Unrefined	Galls.	794,808
—— Refined	,,	29,460,718
Pork	Cwts.	389,439
Potatoes	,,	8,745,838
Pyrites of Iron or Copper	Tons	579,261
Rags and Paper-making Materials:—		
Rags	,,	18,771
Esparto and other Materials	,,	165,168
Rice, not in the Husk	Cwts.	6,109,020
— In the Husk	Qrs.	—
Rosin	Cwts.	992,054
Saltpetre	,,	279,601
—— Cubic Nitre	,,	2,080,208
Seeds:—		
Clover and Grass	,,	305,440
Cotton	Tons	172,719
Flax and Linseed	Qrs.	1,988,829
Rape	,,	639,699
Silk Knubs or Husks and Waste	Cwts.	32,887
Silk, Raw	Lbs.	4,170,606
—— Thrown	,,	40,039
Skins:—		
Sheep and Lamb, Undressed	No.	6,305,187
—— Tanned, Tawed or Dressed	,,	5,016,656
Seal	,,	762,772
Goat, Undressed	,,	1,299,389
—— Tanned, Tawed or Dressed	,,	6,607,575
Spices:—		
Cinnamon	Lbs.	1,527,403
Pepper	,,	24,373,969
Of all other sorts	,,	16,841,083
Spirits:—		
Rum	Pf. Gals.	6,599,751
Brandy	,,	3,528,574
Other Foreign and Colonial Spirits	,,	2,083,638
Total of Spirits	,,	12,211,963
Sugar, Refined and Sugar Candy	Cwts.	3,266,480
—— Raw	,,	14,981,381
—— Molasses	,,	635,398
Tallow and Stearine	,,	921,203
Tea	Lbs.	204,872,899
Teeth, Elephants', Sea-Cow, and Sea Horse	Cwts.	14,635
Tobacco, Manufactured, Cigars, and Snuff	Lbs.	3,809,163
—— Unmanufactured	,,	89,261,868
Wine	Gals.	16,452,538
Wood and Timber:—		
Hewn	Loads	1,686,662
Sawn or Split	,,	3,635,546
Staves	,,	88,066
Mahogany	Tons	44,227
Wool,—Sheep, Lamb, Alpaca, and the Llama Tribe	Lbs.	399,449,435
Woollen Rags	Tons	32,376
Woollen and Worsted Yarn:—		
Berlin Wool and Yarn used for Fancy Purposes	Lbs.	1,028,550
Yarn for Weaving	,,	11,343,339
Yeast, Dried	Cwts.	180,171

EXPORTS OF HOME PRODUCE FROM THE UNITED KINGDOM.—The following table shows the quantities of the chief articles of British and Irish produce and manufactures exported from the United Kingdom in the year ended the 31st of December, 1878:—

Principal Articles.		Quantity.
Alkali	Cwts.	5,644,339
Animals: Horses	No.	2,967
Arms and Ammunition:—		
Firearms (Small)	No.	295,824
Gunpowder	Lbs.	14,223,300
Bags, Empty	Dozs.	5,219,858
Beer and Ale	Brls.	411,669
Books, Printed	Cwts.	85,896
Butter	,,	36,766
Candles, of all sorts	Lbs.	5,345,900
Carriages, Railway	No.	1,666
Cement	Cwts.	4,482,700
Cheese	,,	16,530
Coals, Cinders, and Fuel	Tons	15,494,633
Cordage and Twine	Cwts.	119,656
Corn: Wheat	,,	700,155
—— Wheat Flour	,,	39,405
Cotton Yarn	Lbs.	250,631,800

Principal Articles.		Quantity.
Cotton Manufactures:—		
Piece Goods, White or Plain	Yds.	2,539,166,400
——— Printed, Checked, or Dyed	,,	1,067,298,400
———, of Mixed Materials	,,	12,200,500
Total of Piece Goods	,,	3,618,665,300
Stockings	Doz. Prs.	1,203,712
Thread for Sewing	Lbs.	12,178,800
Fish: Herrings	Brls.	664,852
Glass: Plate	Sq. Ft.	1,154,701
——— Flint	Cwts.	92,844
——— Common Bottles	,,	579,413
——— Of other Sorts	,,	72,130
Hats of all Sorts	Dozs.	899,566
Leather, Tanned, Unwrought	Cwts.	160,985
——— Wrought, Boots and Shoes	Doz. Prs.	430,273
——— Of other Sorts	Lbs.	1,562,948
Linen and Jute Yarn:		
Linen Yarn	,,	18,473,800
Jute Yarn	,,	12,234,600
Linen and Jute Manufactures:—		
Linen Manufactures:		
White or Plain	Yds.	147,499,700
Printed, Checked, or Dyed	,,	9,719,600
Sailcloth and Sails	,,	3,582,400
Total of Piece Goods	,,	160,801,700
Thread for Sewing	Lbs.	2,395,200
Jute Manufactures	Yds.	122,961,200
Metals:—		
Iron, Old, for remanufacture	Tons	32,358
——— Pig, and Puddled	,,	923,080
——— Bar, Angle, Bolt, and Rod	,,	223,869
——— Railroad, of all Sorts	,,	439,392
——— Wire	,,	43,680
——— Hoops, Sheets, and Boiler Plates	,,	192,986
——— Tinned Plates	,,	155,240
——— Cast, wrought, and all other manufactures	,,	250,486
——— Steel, unwrought	,,	24,131
——— Manufactures of Steel, or of Steel and Iron combined	,,	11,638
Total of Iron and Steel	,,	2,296,860
Copper, Unwrought:—		
Ingots, Cakes or Slabs	Cwts.	348,070

Principal Articles.		Quantity.
Copper, Wrought or partly Wrought:—		
Mixed or Yellow Metal	Cwts.	288,352
Of other Sorts	,,	252,420
Brass of all Sorts	,,	98,397
Lead, Pig, Sheet, and Pipe	Tons	34,385
Tin, Unwrought	Cwts.	124,483
Zinc, Wrought and Unwrought	,,	133,317
Oil, Seed	Gals.	16,966,800
Paper (other than Hangings)	Cwts.	346,327
Salt	Tons	817,158
Silk Manufactures:—		
Broad Piece Goods	Yds.	4,819,470
Soap	Cwts.	335,592
Spirits, British	Gals.	1,447,711
Sugar, Refined	Cwts.	1,042,050
Wool, Sheep and Lambs'	Lbs.	6,618,200
Woollen and Worsted Yarn	,,	31,189,600
Woollen and Worsted Manufactures:—		
Cloths, Coatings, &c., Unmixed and Mixed	Yds.	43,529,800
Flannels, Blankets, Blanketing, and Baizes	,,	15,237,700
Worsted Stuffs, Unmixed and Mixed	,,	192,482,800
Carpets and Druggets	,,	6,626,200

Export Markets of the United Kingdom.—The following table, compiled from Returns of the Board of Trade, gives the declared value of the British and Irish produce exported from the United Kingdom to Foreign countries and British possessions in the year ended the 31st of December, 1878, first taking the exports to foreign countries:—

I. Foreign Countries.

Countries.	Value. £
Russia, Northern Ports	5,441,347
——— Southern Ports	1,118,135
Sweden and Norway	2,798,703
Denmark Proper and Iceland	1,526,362
——— Danish West Indies	237,841
Germany	19,457,190
Holland	9,303,090
——— Java, and other Possessions in the Indian Seas	1,662,829
Belgium	5,525,705
France	14,824,885
——— Algeria	168,971
——— Possessions in Senegambia	29,055
——— Possessions in India	25,999
Portugal	2,116,094
——— Azores and Madeira	109,790
Spain	3,210,926
——— Canary Islands	169,963
——— Fernando Po	6,493

Countries.	Value. £
Spain, West India Islands	1,889,960
—— Philippine Islands	835,483
Italy	5,363,838
Austrian Territories	763,034
Greece	982,037
Turkey	7,748,007
—— Wallachia and Moldavia	887,488
Egypt	2,194,030
Morocco	191,292
United States	14,552,076
Mexico	773,331
Central America	732,018
Haiti and San Domingo	333,507
New Granada (United States of Columbia)	1,031,952
Venezuela	473,281
Ecuador	200,111
Brazil	5,577,952
Uruguay	997,866
Argentine Republic	2,317,638
Chili	1,190,893
Peru	1,369,831
China (exclusive of Hong Kong)	3,738,125
Japan	2,615,616
Western Coast of Africa	1,139,789
Other Countries	978,895
Total to Foreign Countries	126,611,428
II. British Possessions.	
Channel Islands	535,597
Gibraltar	710,267
Malta	1,160,845
Canada	5,926,008
Newfoundland	509,618
West India Islands and Guiana	2,647,860
British Honduras	112,676
Australia	19,573,205
British India	23,276,890
The Straits Settlements	1,775,966
Ceylon	803,339
Hong Kong	2,870,796
Mauritius	409,352
Cape of Good Hope and Natal	4,913,304
Sierra Leone	360,742
Possessions on the Gold Coast	511,618
Other Possessions	138,503
Total to British Possessions	66,237,486
Total to Foreign Countries and British Possessions	192,848,914

Wine.—The importation of wine fell off considerably in 1878 as compared with 1877, being only 16,461,000 gallons against 19,630,000 gallons in 1877, a difference of 3,169,000 gallons, or 16 per cent. This decline pervades the supply from nearly every wine-growing country, and can only be attributable to the decreasing demand for the article. The German wines have decreased by 174,000 gallons (taking Germany and Holland together), the French 606,000 gallons, Portuguese 1,179,000 gallons, Madeira 97,000 gallons Spanish, 1,100,000 gallons, and Italian 2,000 gals.

The Import Markets of the United Kingdom.—The total value of the imports into the United Kingdom separated according to the two great divisions of Foreign Countries and British Possessions, stands thus for the two years 1877 and 1878:—

	1877.	1878.
	£	£
Foreign Countries	304,865,000	289,834,000
British Possessions	89,554,000	78,100,000
Total ..	394,419,000	367,934,000

the decrease having been 15,031,000*l*., or 4·9 per cent. in the imports from foreign countries, and a very much larger proportionate decrease, viz., 11,454,000*l*., or 12 per cent. in those from British Possessions and Dependencies. These diminished values are spread with much general regularity over the whole of the foreign countries, the United States forming the only conspicuous instance to the contrary. The following are some of the more prominent cases of decrease and the articles to which may approximately be assigned the falling off in each case, viz.:—*Russia*.—There was a falling off in the imports from this country of 4,300,000*l*., chiefly accounted for by the smaller importations of wheat, flax, and seed. *Sweden*.—This country shows a decrease of 1,000,000*l*., all of which is accounted for in the diminished receipt for timber. *Germany*.—Under this head there is a falling off of 2,800,000*l*., generally distributed throughout the imports from that country. *France*.—There is a deficiency of 4,500,000*l*., of which two millions are for wheat and flour. 400,000*l*. for wine, 500,000*l*. for butter, 300,000*l*. for raw silk, and 400,000*l*. for sugar. *Spain*.—The imports from this country show a falling off of 1,750,000*l*., of which the wine import values account for 377,000*l*., corn 580,000*l*., lead 300,000*l*., and pyrites 200,000*l*. *United States*.—Here only was there an increase of 11 millions, or 12 per cent., in favour of the values of 1878 as compared with 1877.

Food Supply.—The following table, prepared for the first time on the principle of including all imported articles used for food, whether by the population directly, or indirectly through consumption by animals afterwards used for human food, presents statistics for the three years

1876-7-8, giving the total value for each year, excluding spirits, which, as a special stimulant, is held to be not legitimately included in this definition :

	Imported.	Exported.	Retained for Home Consumption.
	£	1876.	£
List 1.—Articles of Food, &c., which can be and are produced in the United Kingdom	84,006,111	£ 2,508,530	81,497,581
List 2.—Articles of Food, &c., which cannot be or are not usually produced in the United Kingdom	71,386,609	13,680,218	57,706,391
Total value	155,392,720	16,188,748	139,203,972
		1877.	
List 1.—Articles of Food, &c., which can be and are produced in the United Kingdom	98,670,012	2,687,241	95,982,771
List 2.—Articles of Food, &c., which cannot be or are not usually produced in the United Kingdom	77,196,324	12,959,906	64,236.418
Total value	175,866,336	15,647,147	160,219,189
		1878.	
List 1.—Articles of Food, &c., which can be and are produced in the United Kingdom	95,022,000	2,556,000	92,466,000
List 2.—Articles of Food, &c., which cannot be or are not usually produced in the United Kingdom	70,010,000	12,928,000	57,082,000
Total value	165,032,000	15,484,000	149,548,000

Imports of Articles of Food.—The following is a concise table of some of the principal articles of food imported in the years 1877-78 :—

	1877.	1878.	Increase or Decrease.
	£	£	£
Living animals	6,012,000	7,454,000	+1,442,000
Bacon	5,732,000	6,695,000	+ 963,000
Hams	1,156,000	1,915,000	+ 759,000
Beef	1,686,000	1,753,000	+ 67,000
Pork	608,000	656,000	+ 48,000
Meat, unenumerated	1,823,000	1,740,000	− 83,000
Fish	1,640,000	1,541,000	− 99,000
Butter	9,543,000	9,940,000	+ 397,000
Lard	1,472,000	1,786,000	+ 314,000
Cheese	4,771,000	4,939.000	+ 168,000
Eggs	2,473,000	2,511,000	+ 38,000
Potatoes	2,348,000	2,396,000	+ 48,000
Rice	3,490,000	3,192,000	− 298,000
Sago and other farinaceous substances	766,000	845,000	+ 79,000
Wheat and Wheat Flour	40 623,000	34,187,000	−6,436,000
Indian corn	9,871,000	12,589,000	+2,718,000
Barley	5,396,000	5,545,000	+ 149,000
Total	99,410,000	99,684,000	+ 274,000

VALUE OF IMPORTS.—The total value of the articles imported into this country in 1877 had increased by about 19 millions or 5 per cent. on a comparison of the figures for that year with those of 1876, and a similar comparison of results with regard to any one of the four preceding years showed a somewhat similar increase, the value of the imports having been almost stationary during that period. In 1878 there was a diminution much greater than the amount of the excess recorded in 1877, the value of the imports having receded in the year to the comparatively small total of 368,000,000*l.* thus showing a decline of 26,000,000*l.* or more than 6 per cent. from the value given for 1877. Therefore the whole of the unusually large increase of 19 millions was lost, and there was a further diminution amounting to about 2 per cent. bringing the total value back to less than the years 1873 and 1874. The only decrease at all resembling it during the last 20 years took place in 1858, when there was a reduction of 23 millions from the value of the imports of the preceding year. This great decrease has been mainly brought about by the fall in prices which has affected nearly every article imported into this country. The following are a few of the most important instances that show the actual decrease in value and the rate per cent. on a comparison of the figures for the two years:—

Value.

	1877.	1878.	Decrease.	Decrease per ct.
	£	£	£	
Coffee	7,778,000	6,012,000	1,776,000	22
Cotton, raw	35,489,000	33,524,000	1,965,000	5·5
Flax	5,054,000	3,482,000	1,572,000	31
Sugar	27,136,000	20,830,000	6,306,000	23
Wheat	33,885,000	27,397,000	6,488,000	19
Timber	20,190,000	13,548,000	6,642,000	32
Wine	7,155,000	6,003,000	1,152,000	16

In the raw material imported for manufacture the value fell from 133,479,000*l.* in 1877 to 122,446,000 in 1878, or 8·2 per cent. The chief materials required for textile manufacture in this country in 1878, with the single exception of jute, were less by 1,029,000 cwts. than in the preceding year, and although they were mostly obtained at a diminished price as compared with the cost of the same articles in 1877, there is a clear indication of the smaller requirement of the country. Hewn and sawn wood fell off in importation from 6,652,000 loads to 5,299,000 or 20 per cent., and in value from 18,969,000*l.* to 13,119,000*l.*, a decrease of 30 per cent. As regards the importation of food the year 1878 is conspicuous both for extent and variety. Wheat was imported to the extent 49,800,000 cwts., being a decrease of 4,300,000 cwts. Of the total quantity, America supplied 29,900,000 cwts., or about three-fifths; Russia and Germany 14,100,000 cwts.; and our own possessions, viz., India, Australia, and British North America 5,800,000 cwts. Of wheat meal and flour nearly one half came from the United States, or 3,635,000 out of 7,824,000 cwts. Barley was brought in a larger quantity than in any previous year, chiefly from the following countries, viz.:—Russia, 4,827,000 cwts.; Denmark, 1,854,000 cwts.; Germany, 3,150,000 cwts.; Turkey, 1,026,000 cwts.; United States, 1,084,000 cwts. The total quantity imported was 14,162,000 cwt., being an increase of 1,181,000 cwt. over the imports of 1877. The number of cattle imported was 1,201,498, an increase of 106,216, or nearly 10 per cent. over 1877. The quantity of dead meat imported into the United Kingdom was 5,959,577 cwt., an increase of 1,557,000 cwts., or 35 per cent. on the imports of 1877. Comparing the value of food of all kinds imported in 1878 with similar imports in 1877, there was a decrease of 6 per cent. The value of food importations in 1878 was 165,032,000*l.* or 44 per cent. of the value of all the articles brought to this country from abroad in that year.

SPIRITS (NOT SWEETENED).—Taking these collectively there was a decrease in the imports of 1,460,000 gallons, and of 59,000*l.* in value, viz., 1877, 13,644,000 gallons, 2,268,000*l.* value; 1878, 12,184,000 gallons, 2,209,000*l.* value. In 1877 there was a falling off of 2½ million gallons, or nearly 24 per cent. in the importation of rum as compared with 1876, and there was again the large reduction from the figures of 1877 of 1,285,000 gallons, or 16 per cent. The number of gallons imported was 6,635,000 gallons, a smaller quantity than we have received since the year 1872. The diminution is chiefly due to the large falling off in the importation from the West

Indies. Unsweetened plain spirits have also receded from 2,741,000 gallons to 1,984,000 gallons, or 27 per cent. Brandy, on the other hand, has increased, viz., from 2,982,000 gallons to 3,565,000 gallons.

VALUE OF EXPORTS.—The total value of the exports of British and Irish produce and manufacture in 1878 was 192,850,000*l.* This is a decrease of about 6,000,000*l.*, or 3 per cent. as compared with the value of the exports in 1877, when they amounted to 198,890,000*l.* Dividing the total by assigning to the foreign countries and British Possessions the amounts belonging to each, we find that there was a decrease of 2,360,000*l.*, or 1·9 per cent. in the value of the goods placed to the credit of the foreign countries, and of 3,680,000*l.*, or 5·3 per cent. in that of the exports to our colonies. In the case of Russia, there was an increase in our exports of 2,380,000*l.*, of which 1,570,000*l.* is credited to the northern ports and 810,000*l.* to the Black Sea ports. The increase in the exports to the northern ports is mainly caused by larger quantities of alkali, cotton yarn, and cotton piece goods, unwrought and wrought copper, linen piece goods, woollen and worsted yarn, and worsted stuffs. The increase is most conspicuous in cotton and woollen yarns, cotton yarns having increased from 1,960,000 lbs., valued at 138,500*l.*, to 9,090,000 lbs., valued at 528,000*l.*, and woollen yarns from 1,270,000 lbs., valued at 163,000*l.*, to 3,230,000 lbs., valued at 418,000*l.* To the southern ports of Russia larger quantities of empty bags, coals, cotton yarn, and piece goods, unwrought and wrought iron machinery and mill work were shipped. An augmentation of about 1,100,000*l.* is also observable in the exports to European Turkey, and consists chiefly of coals, &c., to the increased value of 66,000*l.*, cotton yarn 410,000*l.*, cotton piece goods 365,000*l.*, and woollens specified by the yard 96,000*l.* To Roumania we sent goods to the amount of 887,000*l.*, being an increase of 690,000*l.*, and consisting principally of cotton yarn valued at 170,000*l.*, cotton piece goods 225,000*l.*, iron and steel 97,000*l.*, and woollen and worsted goods 30,000*l.* In the exports to Asiatic Turkey, there was also an increase to the amount of 1,000,000*l.*, fully 700,000*l.* of which is due to larger quantities of cotton yarn and piece goods. It is worthy of remark that the only foreign countries that show any conspicuous increase in the value of goods exported from the United Kingdom are those which were engaged in the late war, and the class of goods exported to them is indicative of the exhaustion caused by the hostilities that desolated the countries in which the conflict took place.

The British exports to the United States of America show a falling off of 1,825,000*l.*

SUMMARY OF IMPORT AND EXPORT TRADE.—The following table from the Report of the Commissioners of Customs gives a summary of our import and export trade with foreign countries and British Possessions, together with the value of gold and silver coin and bullion, and also includes the figures for transhipment account:—

	1877.	1878.
IMPORTS.	£	£
From Foreign Countries	304,865,684	289,835,000
From British Possessions	89,553,998	78,099,000
Gold and Silver Coin and Bullion	37,152,799	32,421,000
Total	431,572,481	400,355,000
EXPORTS.		
British and Irish:—		
To Foreign Countries	128,969,715	126,611,428
To British Possessions	69,923,350	66,237,486
Foreign and Colonial:—		
To Foreign Countries	47,624,155	46,879,722
To British Possessions	5,828,800	5,755,222
Gold and Silver Coin and Bullion	39,810,619	26,686,546
Total	292,156,639	272,170,404
TRANSHIPMENTS.		
Total declared Value of Articles	12,182,241	11,159,822
Total Import, Export, and Transhipment Trade ..	735,911,361	683,685,226

3. TRADE AND AGRICULTURE.

SPIRITS.—The decrease in the quantity consumed in 1878, although not in itself large, viz., 2·3 per cent., is rendered somewhat significant by the fact that this is the third year in which a diminution has taken place. Comparing the quantities of all unsweetened spirits delivered for home consumption in 1878 with those delivered in 1875 there is a falling off of 1,063,000 gallons, or 9·2 per cent.

TEA.—The increase in the quantity of tea consumed in 1878 was 6,416,000 lbs., or 4·2 per cent. greater than that of the previous year. In 1876 and 1877 the increases were only 2·5 and 1·3 per cent. respectively. In 1874 the increase was 4 per cent., and in 1875 nearly 6 per cent., comparing the result of each year with that of the year immediately preceding it.

TOBACCO.—The quantity of leaf tobacco cleared from the bonded warehouses for home consumption was 47,969,263 lbs., being a deficiency of 1,330,797 lbs., or 2·6 per cent. on the figures of 1877. This decrease has been generally accepted as an indication of the diminished capacity on the part of the working classes to purchase articles of comparative luxury. The duty on leaf tobacco was increased to 3*s.* 6*d.* per lb. in April, 1878, so that only nine months' consumption at the higher rate is included. Assuming that the increase of duty has not affected the consumption of tobacco, an assumption strengthened by the unprecedented cheapness of the article, the loss to the revenue in the year on leaf tobacco would have been 209,600*l.* if the duty had remained at the old rate of 3*s.* per pound and 5 per cent. thereon. There was an actual increase of 362,864*l.* in the year ended 31st December, 1878. On manufactured tobacco, including cigars with the additional duty of 4*d.* per lb., there was an increase of 31,439*l.*

WINE.—The falling off in the consumption of wine in 1878 was no less than 1,398,825 gallons, or 7·9 per cent., and this was preceded by a decline of 5·2 per cent. on a similar comparison of the figures for 1878 and 1877. Taking the consumption for the years 1876 and 1878 we get the following result:—1876, 18,671,089 gallons; 1878, 16,272,295 gallons; decrease, 2,398,794 gallons.

AGRICULTURAL RETURNS.—In Great Britain the area returned as under cultivation has increased by 121,000 acres since 1878, and by 264,000 acres since 1877, the total increase in the 10 years since 1869 being no less than 1,637,000 acres, or about the same area as the whole of Devonshire. Of this increase, rather more than two-thirds, or 1,134,000 acres was in England, 228,000 acres in Wales, and 275,000 acres in Scotland; but a great part of this increased acreage must be taken to be caused by more correct returns. At the same time, a considerable portion is really land which is being gradually reclaimed from mountain, moor, or bog. In Ireland the cultivated area shows a slight decrease of 9,000 acres, the decrease in 1878 having been 82,000 acres, and in 1877 nearly 300,000 acres.

WHEAT.—The area under wheat in Great Britain in 1879 was 2,890,000 acres, being a decrease of 328,000 acres from the previous year, or more than 11 per cent. In Ireland there was a fractional increase for the year, and the total area in the United Kingdom was 3,056,000 acres, which shows a decrease of 326,000 acres, or nearly 10 per cent. from 1878. The wheat crop in the United Kingdom has now decreased by nearly a million of acres, or a fourth of its area, since 1869, when 3,982,000 acres were under wheat. The decrease in Great Britain alone is from 3,688,000 to 2,890,000 acres, or 798,000 acres. Barley has partly taken the place of wheat, being this year sown on 2,932,000 acres, an increase of 209,000 acres, and nearly 8 per cent. over 1878, and the largest area sown with that crop since the agricultural returns were first commenced in 1867.

GREEN CROPS.—The acreage of green crops in Great Britain was 3,554,000, an increase of 63,000 acres, showing little change, however, from the average of the last 6 years. Clover and rotation grasses show a very considerable decrease, amounting to 100,000 acres in Great Britain, while there is an increase of 255,000 acres in land laid down in permanent pasture. Orchards have again increased in extent, occupying now 175,000 acres, as compared with 165,000 acres in 1878. "There would appear," says Mr. Giffen, "to be still occasion for much more land to be used for orchards, as the demand for fruit increases, and the imports from abroad have increased in the last 10 years from half a million sterling in value to a million and three-quarters. Market gardens have increased, and in many places the demand for fresh vegetables for the neighbouring towns and the facilities afforded by the railways for bringing produce to London have led many farmers to devote a small portion of their land to vegetables and bush fruit."

OATS.—Oats now cover 3,998,000 acres in the United Kingdom, a decrease of 126,000 acres, or 3 per cent., from 1878. This crop has declined steadily in area during the last 10 years, having amounted to an acreage of nearly four and a half

millions in 1869. The decrease has been almost exclusively in Ireland. The large importations of maize of late years have doubtless competed very largely with the oat crop, thus tending to diminish the breadth sown.

LIVE STOCK.—In live stock there is a small increase in the number of agricultural horses in Great Britain and a larger one in brood mares and unbroken horses. The effect of the high prices of recent years is shown by an increase of nearly 50 per cent. since 1870, when brood mares and young horses numbered 301,000 in Great Britain as compared with 448,000 at the present time. The imports of horses from abroad have somewhat declined of late, having been 30,000 in 1877, 26,000 in 1878, and 13,000 in the first eight months of 1879. Milch cows in Great Britain have increased in number by 2 per cent., and young cattle by 7 per cent., but cattle of two years of age are 5 per cent. less, so that the total number of horned catttle is now 5,856,000, or 2 per cent. more than last year. The number of sheep shows a small increase from last year, but not enough to counterbalance the falling off in lambs, amounting to 366,000 in Great Britain. With few exceptions, the reports on the lambing season are very unfavourable, and in Scotland the severity of the winter and spring caused a diminution of sheep as well. The number of sheep and lambs in Great Britain is now almost the same as in 1877, namely, 28,157,000, as against 28,161,000, and the numbers have been less only in two years since 1867, namely, in 1871 and 1872. In Ireland the returns of cattle show a small increase, and of sheep a small decrease, cattle numbering 4,067,000 and sheep 4,017,000. Pigs in Great Britain are fewer in number by nearly 16 per cent.; the competition of American bacon is reported to have reduced the price of pork and bacon, and a species of typhoid is also noticed by some collectors, especially in the south of England, as accounting for a part of the decrease. There is also a proportionate reduction in the number of pigs in Ireland.

THE ENGLISH PUBLISHING TRADE IN 1878.—Facts in figures are supplied in abundance in the Analytical Table of Books published during the year 1878, compiled from the lists of new works and new editions given in the fortnightly issues of the "Publishers' Circular." Out of the total of 5,314 volumes issued during the year 1878, 3,049, or three-fifths, were absolutely new books, and 2,046, or two-fifths, new editions and reprints. Classifying the figures, we find that out of the total of 5,314 works, theology and Biblical literature, including sermons, claim 739, nearly one-seventh; educational, classical, and philosophical works, 586, more than one-tenth; juvenile works and tales, 448, nearly one-twelfth; novels, tales, and other fiction, 879, nearly one-sixth; law books, 129, or one in every forty-one; treatises on political and social economy, trade and commerce, 181, nearly one-thirteenth; artistic, scientific, and illustrated works, 147, or one in every thirty-six; voyages, travels, and geographical books, 215, nearly one in twenty-five; history, biography, &c., 430, more than one-twelfth; poetry and the drama, 356, nearly one-fifteenth; year-books and annual volumes of serials, 240, or one in every twenty-two; works on medicine, surgery, &c., 233, also one in twenty-two; belles lettres, essays, and monographs, 531, one-tenth; and miscellaneous publications, 200, or one in twenty-six. The total of the year 1878 is 219 in excess of the number registered in 1877, and the increase lies chiefly in theological works, where the new books numbered 531 in 1878, as against 485 in 1877; in educational works, which rose to 424 from 329 in 1877—an increase of nearly one hundred, probably due to the growing activity of School Boards and other scholastic agencies; in history and biography, which rose from 241 in 1877 to 312 in 1878; in year-books and annual volumes of serials, which stood at 225 in 1878, as compared with 70 in 1877—an increase probably more apparent than real; and in belles lettres, 409 as against 249. The number of new novels and works of fiction registered was almost stationary in the two years, being 447 in 1878 and 446 in 1877. The figures in the new book column of 1878 showed an increase on 1877 in every class except in works on art and science, where there was a slight falling off. In the issues of new editions the past year showed a decrease on every class except in novels and fiction, which rose from 408 in 1877 to 432 in 1878. In the total issues during the various months of the year, November takes the lead with 671 volumes, December follows with 590, October with 522; and the lowest point is reached in August, when the total, both of new books and new editions, was only 290; but this is the only month in which the figures are below 300. It may be added that the full titles of all the volumes thus brought into account were given in the "Publishers' Circular," issued by Messrs. Sampson Low and Co. during the year.

MINES.—A Parliamentary paper has been issued containing the reports of the inspectors of mines to the Secretary of State for the year 1878. The mines are divided into two classes—viz., those under the Coal Mines Regulation Act and those under the Metalliferous Mines Regulation Act. The summaries of the statistics for the 12 districts classed under the Coal Mines Regulation Act consist of four separate documents in tabular form, showing the aggregate number of persons employed during the year, above and below ground, in the

coal, fireclay, ironstone, and shale mines of Great Britain and Ireland. It appears from the first summary that 475,329 persons were employed, of whom 382,979 were underground, and 92,350 above ground. This gives a decrease, as compared with the preceding year, of 19,062. It appears from the second summary that 132,612,063 tons of coal, 1,625,586 tons of fireclay, 19,747,227 tons of ironstone, and 813,262 tons of shale, &c., were produced during the year. From the third summary it appears that the fatal accidents amounted to 811, and the deaths occasioned thereby reached 1,413, showing a decrease, when compared with 1877, of 53 in the number of fatal accidents, and an increase of 205 in the number of lives lost. The fourth summary shows that on the average one fatal accident occurred among every 586 persons employed, and that for each fatal accident 179,777 tons of metal were got, and 103,177 tons for each death by accident. It should be stated that while the returns show a diminution in the number of persons employed, there was also a decrease of 263 mines at work, and that the quantity of mineral raised is smaller than that of 1877 by 3,057,122 tons. As to the mines classed under the Metalliferous Mines Regulation Acts, the first summary shows that 51,458 persons were employed during the year. Of the total number of persons employed in Great Britain, 29,812 were underground and 20,127 above ground; and in Ireland, 812 were underground and 707 above ground. The second summary gives the quantities of mineral produced. It appears from a third summary that the fatal accidents amounted to 74 and the deaths to 77. Of these, 69 deaths occurred underground and 8 above ground.

Mineral Statistics. — The Mineral Statistics of the United Kingdom for 1878, issued by the Keeper of Mining Records, Mr. Robert Hunt, F.R.S., show that the total value of the minerals produced in 1878 was 56,264,495*l.*, more than 2,000,000*l.* below the value of the minerals raised in 1877 (58,398,071*l*). That year already showed a small diminution as compared with 1876, the total for which was 58,691,832*l.*; and so low a return as the present has not been known since 1871. Half of the total decrease in the produce of 1878 as compared with that of 1877 is attributed to a diminution in the supply of iron ore, and the greater proportion of the remainder to a decrease in the production of coal. The statistics of coal production given by the Keeper of Mining Records do not, however, always tally with those contained in the reports of the inspectors of coal mines. With regard to the past year there is no noticeable discrepancy; but in 1877 the returns varied from 134,610,763 tons, the figures given by the office of the Keeper of Mining Records, to 132,179,968 tons, the return of Her Majesty's inspectors. The amount of coal which, according to both sources of information, was raised in 1878 exceeded in amount 132,600,000 tons, and was of the value of 46,412,753*l.* It is needless to say that these values are calculated at wholesale prices. Iron ore to the extent of 15,726,370 tons, worth 5,609,507*l.*, was raised. Iron and coal are, of course, the main sources of our mineral wealth, and nothing else approached the amount contributed to the total by these two minerals. The next largest item was furnished by the salt-works. Of salt 2,682,930 tons, valued at 1,341,465*l.*, were extracted from mines and springs. The production was 20,000 tons less than in 1877, and the value 150,000*l.* less. There were obtained 77,350 tons of lead ore, of the value (less by 3,000 tons and 400,000*l.* than in 1877) of 801,428*l.*; and the clays, for the use of potters, for making porcelain, or for the purposes of fire-clay, realised 677,871*l.*, at an average rate of about 5*s.* a ton for 2,711,486 tons. In 1877 the average price was 20 per cent. lower, and the yield a little more. Of tin ore a larger quantity, at a lower price, was raised in 1878 than in 1877. Last year's return was 15,045 tons at 530,737*l.* The produce of 1877 was 14,142 tons for 572,673*l.* Other figures for 1878 may be more briefly referred to. Sundry minerals, including shales, gypsum, calcspar, coprolites, and phosphates, realised 512,000*l.* from a production of 778,029 tons. Copper ore decreased considerably in amount (from 73,141 tons to 56,094), and the 56,094 tons raised brought 201,434*l.* Zinc weighing 25,438 tons and worth 80,565*l.* was raised. Barytes produced 36,688*l.* for 22,435 tons; arsenic, 26,900*l.* for 4,991 tons; iron pyrites, 19,099*l.* for 29,867 tons. It will be observed that by far the largest amounts are furnished by the cheapest of the minerals. Silver realised 5,994*l.* from 94 tons 9 cwt. of silver ore. This does not exhaust the yield of silver, for that widely spread metal, which is detected in the waves of the sea, was also extracted in paying quantities from the lead ores. Ochre and umber worth 4,038*l.*, and weighing 4,414 tons; manganese estimated at 3,120*l.* for 1,586 tons; nickel ore valued at 616*l.* for 98 tons 18 cwt.; fluorspar weighed at 391 tons, and sold for 133*l.*; 10 tons of wolfram worth 100*l.*; and, finally, 8 cwt. of uranium valued at 44*l.*, complete the list. The ores produced in the United Kingdom turned out 702 oz. of gold, valued at 2,848*l.*; 6,381,051 tons of pig iron, worth 16,154,992*l.*; 10,106 tons of tin, worth 663,080*l.*; 3,952 tons of copper, worth 271,042*l.*; 58,020 tons of lead, valued at 972,491*l.*; 6,309 tons of zinc, valued at 123,025*l.* Silver was obtained from lead to the amount of 397,471 oz. and the value of 88,296*l.*; from silver ore the amount was 27,648 oz., and the value 6,223*l.*

THREE YEARS' AGRICULTURE.—The agricultural returns for Great Britain give figures for the years 1877, 1878, and 1879. These relate to the extent of land in Great Britain cultivated for wheat, barley, oats, potatoes, and hops, and to the number of live stock in Great Britain. The acreage of land cultivated for wheat crops was:—In 1877, 3,168,540 acres; in 1878, 3,218,417 acres; and in 1879, 2,890,136 acres, showing a diminution of 10 per cent. as compared with the number for the previous year. The number of acres cultivated for barley has, on the other hand, steadily increased since 1877, in which year there were 2,417,588 acres; in 1878 there were 2,469,652 acres, whereas in 1879 the number rose to 2,667,103 acres. The number of acres, again, given to oats has as steadily decreased; for while they numbered 2,754,179 in 1877 and 2,698,907 in 1878, the number this year amounts only to 2,656,575. The land given to the cultivation of potatoes amounted to 512,471 acres in 1877, to 508,431 in 1878, and to 540,842 in 1879. More land was cultivated for hops in 1878 than in either the preceding or subsequent year, the number of acres for the three years being 71,239, 71,789, and 67,715 respectively. Upon the 4th of June this year there were 118,471 more cattle, but 251,325 less sheep, and 391,784 less pigs in Great Britain than at the corresponding period of last year. The number of cattle returned for 1878 was 5,738,128; whereas in 1879 the number amounted to 5,856,599. The number of sheep on the 4th of June, 1878, was 28,406,206; upon the corresponding date this year the number was 28,154,881. The number of pigs at the former period was 2,483,248, but at the latter period only 2,091,464.

CO-OPERATIVE TRADING.—The report of the committee of management of the Civil Service Supply Association (Limited), for the half-year ended the 30th of June, 1879, shows that during that time goods were bought to the amount of 611,158*l*., and sold to the amount of 706,256*l*.; the stock in hand at the close of the period being valued at 230,631*l*. The gross profits on the trading amounted to 73,406*l*., and the sum of 3,567*l*. was received for sale of tickets to non-shareholders and from other sources of revenue, making a total gross income of 76,973*l*. or about 153,946*l*. a year. The working expenses of the various stores in connection with the Association at Queen Victoria-street, Bedford-street, and Tavistock-street were 62,532*l*. for the half-year, being 8*l*. 17*s*. per cent. on the sales. The net balance or profit remaining for division among the shareholders for the half-year was 8,198*l*., being a reduction on the previous half-year. Some of the items of expenditure show a considerable increase, and the committee explain the increase of 1,300*l*. in the cost of carriage and booking as arising out of the privileges conceded to the 5*s*. ticket-holders in the free carriage of orders of 5*l*. and upwards within the London district. The sales of the half-year amounting to 706,256*l*. comprised:—Grocery, wine, provisions, and tobacco, 332,642*l*.; hosiery, 131,658*l*.; clothing, &c., 45,667*l*.; fancy goods, stationery, &c., 180,969*l*.; china and glass, 15,319*l*. The trade expenses for the half-year include—carriage and booking, 4,865*l*.; paper, string, and straw, 4,717*l*.; stationery and printing, 3,136*l*.; postage, 1,142*l*.; gas, coals, &c., 1,188*l*.; fire insurance, 505*l*.; expenses of meetings, 335*l*.; law expenses, 568*l*.; and miscellaneous trade expenses, 1,112*l*. The amount paid to the committee and auditors for the half-year was 1,732*l*., and the salaries of the officials and employés amounted to 36,704*l*., or about 73,400*l*. a year.

REMUNERATIVE RAILWAY TRAFFIC.—Some statistics, showing the variation in the returns from different classes of railway carriages, are printed in the official balance-sheet of the Manchester, Sheffield, and Lincolnshire Railway. That company owns 133 first-class, 113 second-class, and 271 third-class carriages. In addition there are half a dozen composite carriages, but these must be sunk in the calculation; and the season ticket holders, who travel by all three classes, cannot be included—details of the exact number by each class or of the exact receipts from each class being unattainable. But the earnings from the ordinary passengers are obtainable in the three classes; and it appears that every first-class carriage on the line named earned in the first six months of the year 1879 113*l*.; every second-class carriage 117*l*.; and every third-class carriage 438*l*. And though there is a variation in the details so far as other companies are concerned, yet the principle on all our chief lines remains good—that the lowest class of carriages are the most productive; while it is evident that, as the original outlay on them is very much less, the return on the capital invested is proportionately greater.

THE WHEAT TRADE.—In the twelve months from the 1st September, 1878, to the 31st of August, 1879, there were imported into the United Kingdom 51,725,435 cwts. of wheat, equal to 11,936,639 qrs.; 9,124,388 cwts. of wheat flour, or 2,606,968 qrs.; 9,994,624 cwts. of barley, or 2,798,494 qrs.; 12,133,645 cwts. of oats, or 4,412,234 qrs.; 1,566,441 cwts. of peas, or 348,098 qrs.; 1,700,288 cwts. of beans, or 396,717 qrs.; and 38,621,787 cwts. of Indian corn, or 9,011,750 qrs. The total is 124,866,538 cwts. equal to 31,510,900 qrs. In the preceding twelve months it was 134,430,348 cwts., or 33,858,689 qrs. The import of wheat and wheat flour was

51,809,578 cwts., or 12,321,445 qrs. in the twelve months ending the 31st of August, 1877; 62,255,125 cwts., or 14,808,966 qrs. in the twelve months ending the 31st of August, 1878; and 60,849,823 cwts., or 14,543,607 qrs. in the twelve months ending the 31st of August, 1879.

Railway Traffic in 1878.—In the general report to the Board of Trade by Mr. Calcraft and Mr. Giffen on the share and loan capital, passenger traffic, and goods, the working expenditure and net profits from the working of the railway companies of the United Kingdom, for the year 1878 are stated as follows:—"The extent of the system has been increased only 1·5 per cent. during the year, the double mileage having increased 1·9 per cent. The capital at the same time has increased 3·6 per cent., and the capital per mile open has increased 2·1 per cent. The ordinary capital, however, has increased more slowly than the total capital, or only 0·2 per cent. At the same time, the gross receipts have decreased 0·2 per cent., but the working expenditure has also decreased 2·0 per cent., so that there is an increase in the net earnings of 1·9 per cent. The receipts and expenditure per train mile have both decreased, but as the decrease in the latter case is greater than the former, there is an increase in the net earnings of 0·19*d.* per train mile. The result is (1) a diminution of the percentage of net earnings on the whole capital—viz., from 4·32 to 4·25 per cent.; and (2) a diminution of the dividend paid on the ordinary capital—viz., from 4·51 to 4·32 per cent. These are the results in a year in which the traffic for the first time since 1858 shows a falling off, the average rate of increase since 1858 having been 4·30 per cent., while last year there was a decline of 0·31 per cent. These are also the results at a time when the rate of working expenses is at a high level compared with the whole period prior to 1872. The result to railway capitalists in the circumstances cannot be deemed unfavourable on the average, though it is now to be feared that the decrease of traffic in the year 1878 only marked an unusual retrogression in railway affairs which is not yet at an end, and which may exhibit less favourable results to the railway shareholders before it passes away." The report adds:—"It is evident that, one year with another, third-class traffic increases faster in proportion than either first or second-class traffic. Comparing 1873 with 1878, we find that in that period first-class passenger receipts have decreased from 4,373,274*l.* to 4,307,122*l.*, or 1½ per cent.; second-class passenger receipts have decreased from 3,984,718*l.* to 3,638,750*l.*, or nearly 8¾ per cent. Third-class passenger receipts have increased from 11,750,588*l.* to 14,246,412*l.*, or nearly 21½ per cent. From a variety of causes, therefore, of which the Midland abolition of second-class carriages was only one, the third-class passenger traffic of railways grows out of all proportion to the others. To put the matter another way, first and second-class traffic receipts together amounted in 1873 to 8,357,992*l.*, in 1878 the amount was 7,945,872*l.*, showing a decrease in the aggregate of nearly 5 per cent. In the same period the third-class traffic, which was at the beginning 11,750,588*l.*, about 3,400,000*l.* more than the first and second-class traffic combined, is now 14,246,412*l.*, or 79 per cent. more than that combined traffic. The change in the passenger journeys between 1873 and 1878 is equally striking. First-class passenger journeys have increased from 38,310,754 to 41,386,406, or 8 per cent. Second-class passenger journeys have decreased from 70,327,428 to 65,344,740, or 7 per cent. Third-class passenger journeys have increased from 346,682,006 to 458,293,309 or 32 per cent. Here there is an increase as regards first-class passengers against a decrease in the receipts, while the diminution as regards second-class is rather less than the diminution in the receipts. But it is again the third-class traffic which has increased overwhelmingly out of proportion to the others. The amount of the increase is, in truth, more than the total of the other two classes, either in 1873 or 1878; it is no less a figure than 111,611,303; and the whole number of first and second class passenger journeys was in 1873 only 108,638,182, and in 1878 only 106,731,146."

American Meat.—The import of American meat into this country is assuming large dimensions. The entire quantity of meat imported into Great Britain in 1876 was 16,165,632 lb., the money value of which was 389,395*l.* In 1878 it had risen to 53,661,216 lb., with a money value of 1,264,764*l.*; while from Europe the total money value of dead meat was only 66,535*l.* The value of the imports of all classes of live stock into Great Britain last year from America and the Continent was 7,454,482*l.*, and with dead meat added, 8,785,781*l.* Of that sum nearly 4,000,000*l.* was from America.

Registered Companies.—A Blue-book has been issued which states that during the year 1877, 958 companies, having a total nominal capital of 66,800,186*l.*, and 30 without nominal capital, were registered in the United Kingdom under "The Companies Act, 1862." Of these companies 808 were limited and were registered in London, with capital amounting to 51,125,096*l.*, while 83, also limited, were registered in Scotland, with capital amounting to 11,412,900*l.* In the first half of the year 1878, 377 companies, with a proposed capital of 21,901,783*l.*, and 29 without nominal capital, were registered.

4. POPULATION, PUBLIC EMPLOYMENT, AND VITAL STATISTICS.

MORTALITY IN LONDON.—The following table shows the rates of mortality in London per 1,000 living at five groups of ages in each of the twelve years 1867–78:—

Years.	All Ages.	0—5	5—20	20—40	40—60	60 and upwards.
1867	23·0	75·6	5·0	9·7	21·0	74·9
1868*	23·5	80·6	5·8	9·7	20·9	71·3
1869	24·6	86·0	6·6	9·4	20·9	73·8
1870	24·1	79·5	6·8	9·6	21·0	76·4
1871	24·6	78·6	7·1	11·1	21·6	76·5
1872*	21·5	70·9	4·8	9·0	19·8	68·2
1873	22·5	71·6	4·4	9·1	21·7	82·4
1874	22·6	70·9	5·2	9·2	21·7	78·1
1875	23·8	77·7	5·7	9·2	22·2	78·3
1876*	22·2	72·8	5·0	9·2	21·0	71·6
1877	21·9	69·2	5·3	9·2	20·7	72·0
1878	23·5	78·3	5·4	9·1	21·6	76·4

* The rates in these years, which were Leap years, have been corrected for the difference between 366 days and the 365 days in an ordinary year.

THE GROWTH OF LONDON.—The following return is a number of new houses and new streets and squares, with their length in miles and yards, from 1849 to 1879:—

Period.	No. of New Houses built.	No. of New Streets and Squares formed.		Length of New Streets and Squares.	
		Streets.	Squares.	Miles.	Yards.
1849 to 1854	40,743	1,288	9	237	1,239
1854 to 1862	52,949	1,513	25	239	953
1862 to 1864	35,163	825	10	164	1,321
1864 to 1867	48,565	787	12	127	1,037
1867 to 1868	15,963	491	4	88	1,490
1868 to 1879 (February) ..	31,939	927	7	171	1,569
February to December, 1870 ..	9,682	220	1	42	1,059
Year 1871..	8,693	226	2	38	722
,, 1872..	11,179	147	..	20	1,232
,, 1873..	7,687	154	1	26	890
,, 1874..	7,764	145	2	22	862
,, 1875..	10,023	169	4	29	1,475
,, 1876..	12,938	226	3	36	1,074
,, 1877..	14,410	270	2	39	1,623
,, 1878..	17,127	352	3	55	153
Total	324,825	7,740	85	1,342	859

OUR GREAT TOWNS.—The Registrar-General's report of the mortality of 23 great towns of the United Kingdom in the year 1878 shows again (as in 1877) Portsmouth at the head of the list, the death-rate of that town in 1878 being 19·0 per 1,000 persons living. Leicester, continuing to improve, has advanced to the second place, its mortality in 1878 being 20·8 per 1,000 persons. Next comes Nottingham, which now shows a death-rate reduced to 21·0 per 1,000 persons. Then follows a rate of 21·2 in Brighton, and 21·4 in Bristol. It is 22·1 in Edinburgh, and 22·5 in Bradford. Wolverhampton reports 23·3 per 1,000, and next follows London with 23·5 per 1,000,

the metropolis with its 3¾ millions of people thus standing ninth in the list. Leeds follows with its 23·8 per 1,000, and Newcastle-upon-Tyne with the same rate as Leeds. The ratio is 24·3 in Hull, 24·6 in Norwich, and 24·9 in Glasgow. Next comes 25·0 in Sheffield, 25·3 in Plymouth, 25·5 in Birmingham, 25·6 in Sunderland, 25·6 also in Salford, and 25·8 in Oldham. Beyond this death-rate only three of the 23 towns are to be found—viz., Manchester with 27·9, Liverpool with 29·4, and Dublin with 29·6 per 1,000 persons. These last three were at the bottom of the list of 1877, and they are there again in 1878.

BIRTHS, MARRIAGES, AND DEATHS.—The following table shows the total number of births, deaths, and marriages in England and Wales, and Scotland, from 1860 to 1878, and Ireland, from 1866 to 1878:—

ENGLAND AND WALES.

Years.	Births.	Deaths.	Marriages.
1860	684,048	422,721	170,156
1861	696,406	435,114	163,706
1862	712,684	436,573	163,830
1863	727,417	473,837	173,510
1864	740,275	495,531	180,387
1865	748,069	490,909	185,474
1866	753,870	500,689	187,776
1867	768,349	471,073	179,154
1868	786,808	480,622	176,962
1869	773,381	494,828	176,970
1870	792,787	515,329	181,655
1871	797,428	514,879	190,112
1872	825,907	492,265	201,267
1873	829,778	492,520	205,615
1874	854,956	526,632	201,010
1875	850,607	546,453	201,212
1876	887,968	510,315	201,874
1877	888,200	500,496	194,352
1878	891,418	539,574	189,657

SCOTLAND.

1860	105,629	68,170	21,225
1861	107,036	62,287	20,828
1862	107,138	67,159	20,544
1863	109,325	71,421	22,087
1864	112,445	74,303	22,675
1865	113,126	70,821	23,577
1866	113,639	71,273	23,629
1867	114,115	69,024	22,521
1868	115,673	69,386	21,853
1869	113,395	75,789	22,083
1870	115,423	74,067	23,788
1871	116,127	74,644	23,966
1872	118,873	75,741	25,580
1873	119,738	76,857	26,730
1874	123,795	80,676	26,247
1875	123,693	81,785	25,921
1876	126,749	74,122	26,503
1877	126,824	73,946	25,790
1878	126,707	76,775	24,333

IRELAND.*

1866	146,237	93,598	30,151
1867	144,318	93,911	29,796
1868	146,108	86,803	27,753
1869	145,659	89,573	27,277
1870	150,151	90,695	28,835
1871	151,665	88,720	28,960
1872	149,292	97,577	27,114
1873	144,592	97,840	26,566
1874	144,411	92,352	25,201
1875	138,382	98,243	24,259
1876	140,438	92,499	26,503
1877	139,498	93,509	25,078
1878	134,370	99,839	25,363

* Owing to the defective state of the Registration, the figures for births, deaths, and marriages in Ireland are only an approximation to the real numbers.

ELECTORS IN THE UNITED KINGDOM.—A Parliamentary return has been issued showing, with respect to each Parliamentary constituency in the United Kingdom, the total number of electors on the register now in force. In England the number of county electors is 816,317, of whom 68,386 belong to the three divisions of the West Riding of Yorkshire. Middlesex has the next largest number, 29,949 electors, and Rutland the smallest, 1,718. Wales has 67,332 county electors, and the total for the united counties of England and Wales is 883,649. Coming to the cities and boroughs, Lambeth heads the list of the metropolitan constituencies with 50,511 electors, Hackney being second with 44,723. Finsbury has 43,756 electors; the Tower Hamlets, 41,454; Marylebone, 33,920; Chelsea, 28,360; the city of London, 22,916; Southwark, 22,839; Greenwich, 21,082; and the city of Westminster, 18,947. Birmingham has 65,506 electors on the register; Liverpool has 61,026: the city of Manchester, 60,463; Leeds, 49,074; Sheffield, 39,270; Bradford, 27,640; the city and county of Bristol, 24,994; Kingston-upon-Hull, 25,749; Newcastle-upon-Tyne, 24,049; Salford, 23,411; Wolverhampton, 23,813; Oldham, 21,048; and Wednesbury, 20,845. Marlborough is the smallest borough in England, having only 689 electors on the register. The number of electors in the cities and boroughs of England amounts altogether to 1,496,507. The total number for Wales is 66,812, Swansea, &c., heading the list with 14,311 electors, Brecon having only 843. The grand total of electors for the boroughs of England and Wales is 1,563,319. The Universities of Oxford, of Cambridge, and of London show a total of 13,031 electors, of whom 6,221 belong to Cambridge, 4,963 to Oxford, and 1,847 to London. Ireland possesses a total register of 231,289 electors, and Scotland 307,941.

5. CRIME, PAUPERISM, AND ACCIDENTS.

SMUGGLING.—In the number of seizures, the number of persons convicted of smuggling, and the total quantities of tobacco and cigars and of spirits seized, in the United Kingdom, the returns for 1878 show an increase over those for 1877:—

	1877.	1878.	Increase.
Number of seizures	1,216	1,436	220
Number of persons convicted	1,164	1,309	145

The following is a statement showing the quantity of tobacco and cigars, and of spirits, seized in the United Kingdom in the years 1877 and 1878 respectively:—

	Tobacco and Cigars.				Spirits.			
	1877.	1878.	Increase.	Decrease.	1877.	1878.	Increase.	Decrease.
	Lbs.	Lbs.	Lbs.	Lbs.	Galls.	Galls.	Galls.	Galls.
London ..	1,715	1,831	116	—	75	31	—	44
Outports ..	13,237	15,076	1,839	—	168	333	165	—
Total ..	14,952	16,907	1,955	—	243	364	Increase 121	

The proportion of the cases of smuggling in which the offenders were dealt with summarily to the more serious cases, was that of about 14 of the former to one of the latter. Full details of the cases are given in the reports of the Commissioners of Customs.

CRIME IN THE METROPOLIS IN 1878.—The returns for the year 1878, giving the number of persons taken into custody during the year by the Metropolitan police, and the results, with comparative statements, from 1831 to 1878 inclusive, show that during the year 83,746 persons were taken into custody, and of these 57,038 were summarily convicted or held to bail, 23,167 were discharged by the magistrates, and 3,541 committed for trial. Of this last number at the subsequent proceedings 2,724 were convicted and sentenced, 703 were acquitted, and in 114 cases bills were not found or the persons charged were not prosecuted. The total number of arrests for 1878 is far larger than any year since 1831, the number of persons arrested in 1877 being 77,892, and in the year before 76,214. Of the 83,746 taken into custody last year 56,122 were males and 27,624 females. Of these 7,722 males and 4,999 females could neither read nor write; 46,086 males and 22,417 females could read and write imperfectly, or could read only; 2,220 males and 206 females could read and write well, while 95 males and 2 females were of superior education. By far the greatest number of offences come under the head of drink, for the return shows that 19,181 persons were taken into custody for being drunk and disorderly characters, while 16,227 were prosecuted for drunkenness. The return also gives the age, sex, crime, and punishment of the offenders, with their trade or occupation.

WRECKS.—From the Abstract of the Wreck Register presented by the Board of Trade, before the close of last Session, to Parliament, it appears that the number of shipwrecks, casualties, and collisions on and near the coasts of the United Kingdom during the twelve months from the 1st July, 1877, to the 30th June, 1878, was 3,641, which number is happily less than that of the previous year by 523. It should, however, be clearly understood, that the wrecks and casualties treated of in the various tables contained in the Register do not mean total losses only, but include accidents and damage of all kinds to ships at sea, of which only a small proportion are attended with loss of life. Thus of the 3,641 wrecks, casualties, and collisions on the coast of the United Kingdom, only 422 cases involved total loss, and there was loss of life from only 126, or about 1 in 29, of the vessels thus lost or damaged. The 3,64 wrecks, casualties, and collisions, reported as having occurred on and near the coasts of the United Kingdom during the year 1877-78 comprised 4,436 vessels. The number of ships in that period is less than

the total of the previous year by 581. The number of ships is in excess of the casualties reported, because in cases of collision two or more ships are involved in one casualty. Thus 795 were collisions, and 2,846 were wrecks and casualties other than collisions. On subdividing these latter casualties we find that 363 were wrecks, &c., resulting in total loss, 698 were casualties resulting in serious damage, and 1,785 were minor accidents. During the year 1876-77 the wrecks and casualties other than collisions on and near our coasts numbered 3,317, 471 more than the number reported during 1877-78. The localities of the wrecks, still excluding collisions, are thus given:—East coasts of England and Scotland, 1,007: south coast, 604; west coast of England and Scotland, and coast of Ireland, 944; north coast of Scotland, 106; and other parts, 185. Total, 2,846. Excluding foreign ships and collision cases, 220 wrecks and casualties happened to nearly new ships, and 325 to ships from 3 to 7 years of age. Then there are wrecks and casualties to 508 ships from 7 to 14 years old, and to 811 from 15 to 30 years old. Then follow 418 old ships from 30 to 50 years old. Having passed the service of half a century, we come to the very old ships, viz., 54 between 50 and 60 years old, 26 from 60 to 70, 17 from 70 to 80, 7 from 80 to 90, 1 from 90 to 100, and 2 upwards of 100 years old, while the ages of 57 of the wrecks are unknown. Excluding collisions, 448 steamships, and 2,398 sailing vessels, were lost on our coasts last year. Of the 2,446 British ships meeting with disaster in the year, 1,264 did not exceed 100 tons burden, 777 were from 100 to 300 tons, 174 were from 300 to 500 tons, and 231 were above 500 tons burden. Of the 294 British vessels totally lost, irrespective of collisions, 28 are known to have been built of iron; and of this number 27 were steamships, and 1 was a sailing vessel. The casualties to ships in our rivers and harbours continue to be still very numerous; the number during the year having been 1,072, of which 29 were total losses, 291 were serious casualties, and 752 minor casualties. Of these casualties, collisions numbered 759, founderings 16, strandings 189, and miscellaneous 108. These 1,072 casualties caused the loss of or damage to 1,919 vessels, of which 1,099 were British sailing vessels, 623 British steam vessels, 150 foreign sailing vessels, and 47 foreign steam-vessels. The lives lost in these casualties were 13. With reference to the collisions on and near our coasts during the year, 38 of the 795 collisions were between two steamships under way. Of the lives lost, 377 were lost in vessels that foundered, 181 through vessels in collision, 154 in vessels stranded or cast ashore, and 155 in missing vessels. The remaining twenty-five lives were lost from various causes, such as through being washed overboard in heavy seas, explosions, missing vessels, &c. Of the 126 ships from which the 892 lives were lost, 105 were British, involving the loss of 816 lives, and 21 were foreign, causing the loss of 76 lives.

SIX MONTHS' RAILWAY ACCIDENTS.—The Board of Trade have issued the usual half-yearly summary of accidents which have been reported to the Board upon the railways in the United Kingdom. The period reported upon is the six months ending the 30th of June, 1879. It appears that accidents to trains, rolling stock, permanent way, &c., caused the death of 2 persons and injury to 270. No passenger was killed, but 227 were injured. Of the servants of companies, 1 was killed and 43 were injured. One other person was killed. During the six months there were reported 11 collisions between passenger trains or parts of passenger trains, by which 65 passengers and 1 servant were injured; 38 collisions between passenger trains and goods or mineral trains, engines, &c., by which 1 servant was killed and 114 passengers and 21 servants were injured; 11 collisions between goods trains or parts of goods trains, by which 14 servants were injured; 33 cases of passenger trains or parts of passenger trains leaving the rails, by which 5 passengers were injured; 4 cases of trains or engines travelling the wrong direction through points, by which 8 passengers and 1 servant were injured; 7 cases of trains running into stations or sidings at too high a speed, by which 1 man was killed and 33 passengers were injured; 603 failures of tyres, 2 servants being injured; 217 failures of axles, 2 passengers and 2 servants being injured; 2 failures of ropes used in working inclines, 1 servant being injured; and 282 broken rails, 1 servant being injured. Of other casualties, in which no personal injury was inflicted, there were three cases of goods trains or parts of goods trains, engines, &c., leaving the rails; 62 cases of trains running over cattle or other obstructions on the line; 28 cases of trains running through gates at level crossings; 5 cases of failure of machinery, springs, &c., of engines; 15 failures of wheels, 6 failures of couplings, 1 failure of a bridge, 1 case of flooding of portion of permanent way, 6 slips of cuttings or embankments, 1 fire in a train, and 1 other accident. Under the head of "Accidents to passengers from causes other than accidents to trains, rolling stock, permanent way, &c., including accidents from their own want of caution or misconduct, accidents to persons passing over level crossings, trespassers, and others," we read that 214 persons were killed and 307 injured, 34 of the killed and 215 of the injured being passengers. Of the latter, 11 were killed and 19 injured by falling between carriages and platforms, namely, 6 killed and 12 injured when alighting from, and 5 killed and 7 injured when getting into, trains; 4 were killed and 154 injured by falling on to platforms, ballast, &c.,

namely, 4 killed and 142 injured when alighting from, and 12 injured when getting into, trains; 10 were killed and 4 injured whilst passing over the line at stations; 13 were injured by the closing of carriage-doors; 4 were killed and 11 injured by falling out of carriages during the travelling of trains; and 5 were killed and 14 injured from other causes. 27 persons were killed and 14 injured while passing over railways at level crossings, viz., 17 killed and 11 injured at public level crossings, 8 killed and 2 injured at occupation crossings, and 2 killed and 1 injured at foot crossings. 118 persons were killed and 46 injured when trespassing on the railways; 21 persons committed suicide on railways; and of other persons not specifically classed, but mostly private people having business on the companies' premises, 14 were killed and 32 injured. During the six months there were 188 servants of companies or contractors reported as having been killed and 820 injured, in addition to those included in the first division. The following is a summary:—

	Killed.	Injured.
Passengers:—		
From accidents to trains, rolling stock, permanent way, &c. ..	..	227
By accidents from other causes	34	215
Servants of companies or contractors:—		
From accidents to trains, rolling stock, permanent way, &c. ..	1	43
By accidents from other causes	118	820
Persons passing over railways at level crossings..	27	14
Trespassers (including suicides)	139	46
Other persons not coming in above classification	15	32
Total	404	1,397

In addition to the above, the railway companies have reported to the Board of Trade, in pursuance of the 6th section of the "Regulation of Railways Act, 1871," a number of accidents which occurred upon their premises, but in which the movement of vehicles used exclusively upon railways was not concerned. The total number of personal accidents reported to the Board during the six months is thus brought up to 424 persons killed and 2,350 injured.

PRISONS.—The Commissioners of Prisons in their report for the year 1878-9, with respect to the local prisons in England and Wales, state that so far as the experience of 12 months, since their first report was issued in July of 1878, enables them to form an opinion of the changes which have been adopted on their recommendation, the result will be found to realise the expectations on which that recommendation was based. The most considerable alteration, they add, was that by which the number of prisons in use had been reduced from 113 to 68, and it was one which had for the most part been accepted by the various localities concerned without any objection. Only in a very limited number of localities had there been any reluctance to view the new distribution of prison accommodation as being calculated to meet all reasonable requirements. Shortly after the Commissioners took upon themselves the charge of the prisons, the prison population began to increase until in 1878 it reached the number of 21,030, a larger number than was shown in the returns for any year since 1871. After July, 1878, the population fell until in December it was reduced to 18,608, which was lower than in the corresponding quarter of any year after 1875. During the period when the prisons were most full no difficulty had been found in accommodating all those for whom room was required, and even then a large number of cells were unoccupied. At the end of last March the ordinary cell accommodation had been increased by 706 cells, and 454 more were in the course of being added, while 850 new cells were being constructed in certain prisons. The reduction in the number of prisons, the report goes on to say, has enabled the Commissioners to reduce the total number of officers, and in that way the expenditure under that head, which constitutes about two-fifths of the entire cost of the prison service. The staff of the retained prisons has been fixed approximately at 350 fewer than the united prison staffs before the 1st of April, 1878, and the estimated cost of the staff for the current year was 27,000*l.* less than that shown by the judicial statistics for the year 1877. It further appears from the report that during the last ten years the highest daily average of prisoners was in 1877, when it amounted to 20,361, and the largest total outlay, including cost of inspection, in 1868, when the sum of 618,982*l.* was expended. In 1878 the daily average of prisoners was 19,733, the expenses 477,456*l.*, including 6,400 pay to staff of abolished prisons, an amount which is less by nearly 35,000*l.* than the expenses for 1875, which shows the lowest total of any of the preceding ten years. The estimated expenditure for the present year gives a still further reduction, the total cost, including that of inspection, being fixed at 472,680*l.* for a daily average of 20,500 prisoners.

6. EDUCATION, SCIENCE, AND ART.

Progress of Education in Great Britain.—The following table exhibits the progress of education in Great Britain in schools under Government Inspection from 1859 to 1878, distinguishing England and Wales from Scotland:—

Years ended 31st August.	Number of Schools Inspected.	Number of Children who can be Accommodated.	Average number of Children in Attendance.	Number of Children present at Inspection.
	England and Wales (including Isle of Man and Roman Catholic Schools for Great Britain).			
1859	5,531	1,054,813	674,602	757,082
1864	6,470	1,332,553	862,817	983,928
1869	8,592	1,838,416	1,153,572	1,448,299
1874	13,084	2,952,479	1,710,806	2,093,180
1876	14,875	3,483,789	2,007,732	2,448,299
1877	15,187	3,653,418	2,150,683	2,633,198
1878	16,293	3,942,337	2,405,197	2,944,127
	Scotland (exclusive of Roman Catholic Schools, included above).			
1859	1,055	154,228	126,799	123,049
1864	1,421	188,904	148,317	149,363
1869	1,745	237,928	179,214	191,203
1874	2,587	391,592	274,588	314,576
1876	2,912	462,986	332,545	382,224
1877	2,931	535,949	360,413	417,699
1878	2,998	563,481	377,257	439,021
	Total for Great Britain.			
1859	6,586	1,209,041	801,401	880,131
1864	7,891	1,521,457	1,011,134	1,133,291
1869	10,337	2,076,344	1,332,786	1,639,502
1874	15,671	3,344,071	1,985,394	2,407,756
1876	17,787	3,946,775	2,340,227	2,830,523
1877	18,118	4,189,367	2,511,096	3,050,897
1878	19,291	4,505,818	2,782,454	3,383,148

Annual Parliamentary Grants for Education in England from 1833 to 1879.

1833—1838	£20,000	1863 . .	£804,002
1839—1841	30,000	1864 . .	705,404
1842—1844	40,000	1865 . .	693,078
1845 . .	75,000	1866 . .	694,530
1846—1850	115,000	1867 . .	705,865
1851 . .	150,000	1868 . .	781,324
1852 . .	160,000	1869 . .	840,711
1853 . .	260,000	1870 . .	914,721
1854 . .	263,000	1871 . .	1,458,402
1855 . .	396,921	1872 . .	1,551,560
1856 . .	451,213	1873 . .	1,299,803
1857 . .	541,233	1874 . .	1,356,852
1858 . .	663,435	1875 . .	1,548,563
1859 . .	836,920	1876 . .	1,707,055
1860 . .	798,167	1877 . .	1,910,000
1861 . .	803,794	1878 . .	2,149,208
1862 . .	842,119	1879 . .	2,481,168

Primary Education in England and Wales in 1878.—The report of the Committee of Council on Education for England and Wales, states that in many important respects the progress made during the year has been "extremely satisfactory." In the year ending 31st August, 1878, the inspectors visited 16,293 day schools in England and Wales, to which annual grants were made, containing 23,618 departments under separate teachers, and furnishing accommodation, at eight square feet of superficial area per child, for 3,942,337 scholars. There were on the registers the names of 3,495,892 children, of whom 1,189,557 were (infants) under 7 years of age; 2,158,179 were between 7 and 13; 141,156 were above 13. Of these scholars 2,944,127 were present on the day of the inspectors' visit to their respective schools, while 2,405,107 were, on an average, in daily attendance throughout the year; 2,259,774 having made the requisite number of attendances were qualified to bring grants to their schools,

598,313 (being under 7 years of age) without individual examination; 1,661,461 (above 7), on passing a satisfactory examination in reading, writing, and arithmetic; 1,562,224 were actually presented for such examination, and while 938,058 passed the prescribed test without failure in any one of the three subjects, 86·59 scholars out of every 100 examined passed in reading, 79·59 in writing, and 72·24 in arithmetic. These figures show a considerable improvement upon the returns quoted in the last report. The accommodation has increased by 288,919 school places (or 7·9 per cent.); the scholars on the registers by 340,919 (10·8 per cent.); those present at inspection by 310,929 (11·8 per cent.); and the average attendance by 254,514 (11·8 per cent.); while the number of children individually examined has increased by 227,126 (or 17 per cent.). The local effort which has resulted in this improvement may be measured by the continued support derived from voluntary contributions (774,104*l.* from 285,624 subscribers); by an advance in the contributions from rates to the maintenance of Board Schools from 447,710*l.* to 570,193*l.*; and by a rise in school pence from 1,138,270*l.* to 1,275,073*l.* The annual Government grants to elementary schools rose in the year from 1,543,225*l.* to 1,820,661*l.*, or from 14*s.* 4¼*d.* to 15*s.* 1¾*d.* per scholar in average attendance; while the grant for the current financial year is estimated at 15*s.* 9*d.* per head. "This," remarks the Committee of Council, "is no small contribution from Imperial funds, whether we look at the total amount of the grant, or at the sum paid in respect of each scholar. We think the time has come when it will have to be considered whether it is necessary to maintain this high rate of aid for the future, now that the operation of the bye-laws has largely added to the number of our scholars, and has enabled so many of them to earn, for their schools, grants, of which a large proportion (nearly two-fifths) is paid merely in respect of their enforced attendance. It is to be borne in mind that the leading conditions on which the Parliamentary grant is now administered were settled before the effect of compulsory education had been realised, or any trustworthy estimate could be formed of the probable results of the working of this new system."

FREE LIBRARIES.—From statistics which have been compiled relating to the circulation of books in free public libraries, Liverpool and Manchester stand at the head of the list for the whole of the country. The total circulation last year in connection with the Liverpool Library was 882,105, that for Manchester being 733,963. Birmingham came next, with a circulation of 658,030; then Sheffield, with 383,374; followed by Dundee, with 245,363; Rochdale, 173,487; Bolton, 157,850; and Plymouth, 125,059.

7. EMIGRATION.

EMIGRATION.—The following table shows the number of emigrants, of British origin only, from the United Kingdom to countries out of Europe; and number of immigrants into the United Kingdom from such countries from 1863 to 1878:—

Years.	Emigrants to					Immigrants.
	British North American Colonies.	United States.	Australia and New Zealand.	Other Places.	Total.	
1863 ..	9,665	130,528	50,157	2,514	192,864	
1864 ..	11,371	130,165	40,073	5,472	187,081	
1865 ..	14,424	118,463	36,683	5,321	174,891	Not ascertained.
1866 ..	9,988	131,840	23,682	4,543	170,053	
1867 ..	12,160	126,051	14,023	4,748	156,982	
1868 ..	12,332	108,490	12,332	5,033	138,187	
1869 ..	20,921	146,737	14,457	4,185	186,300	
1870 ..	27,168	153,466	16,526	5,351	202,511	49,157
1871 ..	24,954	150,788	11,695	5,314	192,751	53,827
1872 ..	24,382	161,782	15,248	9,082	210,494	70,181
1873 ..	29,045	166,730	25,137	7,433	228,345	86,416
1874 ..	20,728	113,774	52,581	10,189	197,272	118,129
1875 ..	12,306	81,193	34,750	12,426	140,675	94,228
1876 ..	9,335	54,554	32,196	13,384	109,469	93,557
1877 ..	7,720	45,481	30,128	11,856	95,195	81,848
1878 ..	10,652	54,694	36,479	11,077	112,902	77,951

8. THE POST OFFICE.

THE LETTER POST. — The enormous growth of the letter post is shown by a table published in the Statistical Abstract of the United Kingdom, which gives the total number of letters annually delivered stated in millions from 1865 to 1879.

Years.	Number of Letters delivered in (stated in Millions).				Proportionate Number of Letters delivered per each 100 of the Population in			
	England and Wales.	Scotland.	Ireland.	United Kingdom.	England and Wales.	Scotland.	Ireland.	United Kingdom.
	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.	Millions.
1865	597	67	56	720	2,831	2,104	1,001	2,411
1866	623	70	57	750	2,919	2,178	1,033	2,494
1867	640	76	59	775	2,962	2,343	1,076	2,555
1868	670	78	60	808	3,062	2,382	1,099	2,639
1869	683	79	62	824	3,081	2,391	1,139	2,665
1870	704	79	64	847	3,135	2,369	1,182	2,714
1871	721	80	66	867	3,168	2,376	1,225	2,751
1872	737	82	66	885	3,195	2,412	1,229	2,780
1873	756	84	67	907	3,237	2,448	1,255	2,823
1874	802	90	70	962	3,377	2,600	1,318	2,946
1875	847	91	71	1,009	3,529	2,600	1,339	3,085
1876	856	91	72	1,019	3,520	2,579	1,354	3,097
1st Jan.—31st March, 1877	218	24	18	259	899	680	338	783
1877—78 ..	884	100	74	1,058	3,601	2,808	1,386	3,163
1878—79 ..	922	99	76	1,097	3,698	2,748	1,419	3,237

SAVINGS BANKS UNDER THE POST OFFICE. —The following table shows the total amount received from and paid to depositors in the Post Office Savings Banks from 1866 to 1878;—

		England and Wales.	Scotland.	Ireland.	United Kingdom.
		£	£	£	£
1866..	Received*	4,335,449	99,798	134,583	4,569,830
	Paid	2,776,956	83,013	115,086	2,975,055
	Capital	7,719,981	164,560	236,634	8,121,175
1868..	Received*	5,247,761	120,818	237,288	5,605,867
	Paid	3,475,843	83,696	129,602	3,689,141
	Capital	11,002,147	229,676	434,832	11,666,655
1870..	Received*	5,891,508	146,429	295,145	6,333,082
	Paid	4,442,862	108,941	206,384	4,758,187
	Capital..	14,161,869	304,235	633,000	15,099,104
1872..	Received*	7,567,034	189,074	373,887	8,129,995
	Paid	5,402,644	140,630	293,386	5,836,660
	Capital	18,103,398	389,201	825,740	19,318,339
1874..	Received*	8,319,179	184,432	362,204	8,865,815
	Paid	6,410,824	171,264	294,007	6,876,095
	Capital..	21,825,787	417,936	913,746	23,157,469
1876..	Received*	8,963,813	187,883	449,985	9,601,681
	Paid	7,311,152	151,753	329,571	7,792,476
	Capital..	25,393,490	479,343	1,123,717	26,996 550
1877..	Received*	9,316,623	198,869	493,886	10,009,378
	Paid	7,735,795	168,497	360,879	8,265,171
	Capital..	26,974,318	509,715	1,256,724	28,740,757
1878..	Received*	9,483,248	214,389	487,363	10,185,000
	Paid	7,919,462	176,451	418,281	8,514,194
	Capital..	28,538,104	547,653	1,325,806	30,411,563

* Including interest.

9. MISCELLANEOUS.

THE BRITISH MUSEUM.—The British Museum was visited during 1878 by 448,516 persons, exclusive of readers—a smaller number than has been recorded since 1873. Readers, on the other hand, were more numerous than during any of the previous five years, numbering 114,516, the daily average being 392, and each reader consulting about eleven volumes daily.

UNIVERSITY ELECTORS.—From a return obtained by Mr. Goldney as to Parliamentary voters at the Universities of Oxford and Cambridge, it appears that the total number of Doctors and Masters who had the right of voting at the election of members to serve in Parliament for the University of Oxford at the end of Trinity Term, 8th of July, and until the end of Michaelmas Term, 17th of December, in the year 1878, was 4,963. Of this total the number of those who were in holy orders was apparently about 2,894. The total number of names on the register of the University of Cambridge on the 19th of October, 1878, was 6,221, or whom 116 were Doctors of Divinity, and 3,171 persons in holy orders. There were 75 Doctors of Medicine, 63 Doctors of Law, and 2,795 Masters of Arts not in holy orders. It is added, however, with respect to Cambridge University, that as no record is kept of the number of persons in holy orders on the register, it is possible that the number stated may not be absolutely correct.

METROPOLITAN BOARD OF WORKS.—A return relating to the accounts of the Metropolitan Board of Works shows that the total amount of consolidated stock raised by the Board is 13,111,011*l*., of which 12,374,269*l*. had been received up to December 31, 1878, the remainder being receivable during the course of the year 1879. Of the total received, 12,033,628*l*. had been expended up to December 31, 1878, leaving a balance in hand of 340,640*l*. The estimated expenditure of the Board for the year 1879 was 3,178,283*l*.

PUBLIC COMMONS.—The following is a list of the commons which have been the subject of schemes under the Metropolitan Commons Acts, confirmed by Parliament:—1. Hayes Common, Kent, about 200 acres; 2. Blackheath, Kent, about 267; 3. Shepherd's-bush Common, Middlesex, about 8; 4. Hackney Common, Middlesex, about 166; 5. Tooting Beck Common, Surrey, about 144; 6. Barnes Common, Surrey, about 120; 7. Ealing Common, Middlesex, about 50; 8. Clapham Common, Surrey, about 200; 9. Bostall Heath, Kent, about 55; total, about 1,210 acres.

THE DEMOLITION OF CITY CHURCHES.—From the return presented to the House of Commons of the number of churches pulled down or condemned under "The Union of Benefices Act, 1860," with a statement of the sums realised by the sales of sites, and what has been done with the proceeds, it appears that the following sums were realised by the sales: St. Benet, Gracechurch-street, 23,894*l*. 4*s*.; St. Mary Somerset, Upper Thames-street, 10,241*l*.; St. Mildred, Poultry, 49,550*l*. 14*s*. 6*d*.; St. Martin Outwich, 37,631*l*. 8*s*. 9*d*.; St. James's, Aldgate, 6,601*l*. 12*s*. 2*d*.; St. Antholin, Queen Victoria-street, 44,990*l*. 12*s*. 9*d*.; St. Michael, Queenhithe, 10,541*l*. 14*s*. 7*d*.; All Hallows, Bread-street, 32,214*l*. 11*s*. 10*d*.; All Hallows, Staining-lane, 12,418*l*. 3*s*. 4*d*. Total, 228,324*l*. 1*s*. 11*d*. The greater portion of this money has been expended in the erection of other churches, parsonage houses, &c., at Stepney, Hoxton, Clerkenwell, Dalston, Limehouse, Red Lion-square, Nunhead, Camden Town, East India Docks, and Bromley-by-Bow.

CIVIL LIST PENSIONS.—The following is a list of all pensions granted during the year ended June 20, 1879, and charged upon the Civil List:—Mrs. Anne Josephine Home, in recognition of the great services of her husband, the late Colonel Home, R.E., 300*l*.; Mrs. Mary Howitt, in consideration of her literary services, 100*l*.; Mr. Frederick Martin, F.S.S., in consideration of his labours as the author of the "Statesman's Year-Book" and of his other literary works, 100*l*.; Mary, Lady Duffus Hardy, in recognition of the historical, literary, and public services of her late husband, Sir Thomas Duffus Hardy, Deputy Keeper of the Public Records, 100*l*.; Mrs. Sarah Elizabeth Melvill, in recognition of the heroic conduct of her late husband, Lieutenant and Adjutant Melvill, in saving the colours of the 24th Regiment on the field of Isandlana, 100*l*.; Mrs. Henrietta Mary Ada Ward, in recognition of the services rendered to art by her late husband, Edward Matthew Ward, R.A., 100*l*.; Mrs. Frances Amelia Brewer, in recognition of the services rendered to history and literature by her late husband, the Rev. John Sherren Brewer, M.A., 100*l*.; Mr. Henry Smart, in consideration of his services in music, 100*l*.; Mrs. Robina Ogilvie, in recognition of the able public services rendered during a period of 48 years by her late husband, Mr. Robert Annesley Ogilvie, C.B., Surveyor-General in the Department of Her Majesty's Customs, 100*l*.; Mr. Edward Lang, C.E., in consideration of his scientific attainments and labours towards the perfection of mechanical appliances, 100*l*.

CHRONICLE OF EVENTS AND OCCURRENCES.

Home and Foreign.

From November, 1878, *to November,* 1879.

1878.

Nov. 9. Lord Beaconsfield spoke at the Mansion-House Banquet upon the Berlin Treaty, repudiating any intention of evading, or permitting the evasion of, its provisions on the part of the English or other Governments.

-. Conclusion of investigation by Board of Trade Commissioners into loss of "Princess Alice," resulting in decision that the accident was caused by neglect of the Thames Conservancy rule, that vessels meeting end-on shall port both helms.

16. Lord Rosebery elected Lord Rector of Aberdeen University, by 302 votes against 298 for Mr. Cross.

17. Attempt to assassinate the King of Italy at Naples.

20. Close of period given by Viceroy for Shere Ali's submission.

—. Meeting of locked-out agricultural labourers at Exeter Hall.

21. Ali Musjid, Afghan fort, taken by English troops: commencement of Afghan War.

—. Duel between M. Fourtou and M. Gambetta at Paris, arising out of their disputes in the Assembly.

—. Bank rate raised from 5 per cent., at which it was fixed on 14th October, to 6 per cent.

25. Close of 100 mills at Oldham, employing 12,000 hands, owing to the refusal of the operatives to accept a 5 per cent reduction of wages.

—. Public reception of Marquis of Lorne and Princess Louise at Halifax.

—. Hamburg mail steamer "Pommerania" run into and sunk near Folkestone; loss of 130 lives.

—. Mr. Leighton, the newly elected President of the Royal Academy, knighted by the Queen.

28. Proclamation summoning Parliament to meet on 5th December.

30. The Khyber Pass blocked by Afridis.

—. Mr. Gladstone took farewell of the Greenwich electors.

Dec. 2. General Roberts captured Peiwar Kotal, and Khyber Pass cleared of Afghans.

5. Meeting of Parliament.

-. The German Emperor made a public entry into Berlin and re-assumed the Government on recovery from illness.

6. The Queen's consent to the marriage of the Duke of Connaught with the Princess Louise Margaret of Prussia formally announced.

9. Stoppage of the West of England and South Wales District Bank.

10. The vote of censure on the Ministry moved by Lord Halifax, rejected by 231 to 65 in the House of Lords.

11. Judgment in the Admiralty Court on the "Princess Alice" disaster, both vessels being held to have been in fault.

13. Vote of censure on the Ministry moved by Mr. Whitbread, and rejected in the House of Commons by 328 to 227.

14. Death of Princess Alice at Hesse Darmstadt.

16. Ordinance rendering able-bodied men, except priests or Government servants, in Cyprus, liable to labour for 15 or 30 days in each year on works of public utility, promulgated by Sir G. Wolseley.

Dec. 17. Vote of condolence to the Queen passed in the House of Lords and the adjournment of the House resolved upon.
—. Ultimatum sent to Cetewayo published at Natal.
18. Funeral of Princess Alice at Darmstadt.
—. Amendment of Professor Fawcett in opposition to the Government proposal to charge the cost of the Afghan War largely on the Indian revenues, rejected by 235 to 125.
20. General Browne entered Jellalabad.
21. Duke of Cumberland married to Princess Thyra at Copenhagen.
23. Shere Ali's flight from Cabul announced.

1879.

Jan. 2. Explosion on board H.M.S. "Thunderer;" 10 killed, 32 injured.
11. Birmingham Free Library burnt.
13. British troops entered Candahar.
14. M. Grévy elected President of the French Chamber of Deputies.
20. Victory of the Dufaure Ministry in the French Chamber, by 223 to 121.
22. Surprise and capture of the English camp at Isandula by the Zulus: gallant defence of Rorke's Drift.
30. Marshal MacMahon resigned, and M. Grévy elected President of the French Republic.
31. M. Gambetta elected President of French Chamber of Deputies.
—. Marquis of Hartington installed as Rector of Edinburgh University.

Feb. 4. Union Bank, Helston, Cornwall, suspended payment.
—. Charles Peace sentenced to death for murder of Mr. Dyson at Sheffield.
5. New Cabinet gazetted at Paris, with M. Waddington as President of the Council and M. Gambetta President of the Chamber.
6. Announcement of first engagement between English and Zulu force.
7. Riot of dock labourers on strike at Liverpool.
8. Treaty between Russia and Turkey signed, confirming the Treaty of Berlin.
9. M. Loyson (Père Hyacinthe) opened a "Reformed Catholic Church" at Paris.
13. Parliament reassembled.
19. Mr. Balfour's Burial Bill "talked out" in the House of Commons.
22. First meeting of the Bulgarian Assembly at Tirnova.
25. Execution of Charles Peace at Armley Gaol, Leeds.
26. Mr. Monk's Consecration of Churchyards Amendment Act rejected in the Commons, by 160 to 129.
27. Vote of credit of 1,500,000*l.* for the Zulu War agreed to.
—. Bishop of Oxford (Dr. Mackarness) appeared in Court of Queen's Bench to conduct his own case against the applicants for a mandamus to compel him to allow a suit against the Vicar of Clewer.

March 3. Confirmation of news of Shere Ali's death.
4. Mr. Trevelyan's County Franchise motion rejected by 291 to 226.
7. The House of Commons rejected the Female Suffrage motion by 217 to 103.
—. Passanante sentenced to death for the attempted assassination of the King of Italy.
11. Sir Wilfrid Lawson's motion for local option on the licensing question rejected in the House of Commons by 252 to 164.
—. Princess Louise Margaret of Prussia landed at Queenborough.

March 13. Marriage of the Duke of Connaught with the Princess Louise Margaret of Prussia at Windsor.
—. Great floods in Hungary.
18. William Habron, who had been convicted of the Whalley Range murder and had suffered two years' imprisonment, liberated with a free pardon.
22. The French Chamber of Deputies adopted a resolution in favour of the return of the Chamber to Versailles.
25. Lord Lansdowne's motion of censure on the Government for not recalling Sir Bartle Frere rejected by 156 to 61.
—. Queen Victoria left Windsor for Italy.
30. Lieutenant Harford and 50 men of the 10th Hussars drowned while fording the Cabul River at Jellalabad.
April 3. Sir Stafford Northcote introduced the Budget: estimated income for 1879-80, 83,055,000*l.*; estimated expenditure 81,153,573*l.*
4. Lord Chelmsford relieved Colonel Pearson and the garrison at Ekowe.
5. Garibaldi returned to Rome.
-. University Boat Race won by Cambridge by 3½ lengths.
7. The Khedive of Egypt dismissed Mr. Rivers Wilson and M. de Blignières, and formed an exclusively native Cabinet.
-. Great strikes of 30,000 colliers in Durham.
8. House of Lords gave judgment that the trustees who were shareholders in the City of Glasgow Bank are liable to the fullest extent, the individual liability being estimated at 2,250*l.*
14. Attempted assassination of the Czar at St. Petersburg.
22. Relief of Ekowe announced in Parliament.
24. Mr. Rylands' resolution condemning the financial policy of the Government rejected by a majority of 73.
26. The Queen arrived at Windsor on her return from Italy.
—. Statute for the administration of Eastern Roumelia signed by the International Commission.
28. Mr. Rylands' motion condemning the financial policy of the Government rejected in the House of Commons by 303 to 250.
29. Prince Alexander of Battenburg elected first Prince of Bulgaria.
May 4. Lord Thurlow's motion in the House of Lords in favour of opening the National Museums and Picture Galleries on Sunday afternoons rejected by eight votes.
6. Prince of Wales spoke in the House of Lords in favour of the Bill for legalising marriage with a deceased wife's sister.
-. Resolution abolishing actions for breach of promise of marriage, except where pecuniary loss is incurred, carried in House of Commons on Mr. Herschell's motion by 106 to 65.
8. Yakoob Khan, Ameer of Afghanistan, arrived at British Camp and made overtures to the Viceroy for peace.
-. Balloting among Durham miners resulted in favour of termination of strike.
12. Bill prohibiting unlicensed horse races within ten miles of London read a second time in House of Lords by 84 to 57.
13. Dr. Newman created a Cardinal at Rome.
c7. The Austrian Reichsrath closed by the Emperor on completion of its legal term of six years.
19. Yakoob Khan agreed to the bases for a treaty of peace.
—. Durham miners resumed work on close of strike.
22. Mr. Shaw elected chairman of the Home Rule party.
24. The Prince of Wales declared Lambeth, Vauxhall, Chelsea, and the Albert and Battersea bridges free from toll.

May 26. Treaty of Peace with Yakoob Khan signed at Gandamuk.
29. British troops in Afghanistan ordered to fall back within the new frontier.
30. The decision of the Queen's Bench, which had ordered a mandamus to be issued against the Bishop of Oxford to take proceedings in the Clewer ritual case, reversed on appeal.
—. Sir Garnet Wolseley embarked in the "Edinburgh Castle" for the Cape.

June 1. Prince Louis Napoleon surprised and killed by Zulus near Itelezi.
11. Golden Wedding of the Emperor and Empress of Germany.
24. Messrs. C. Woolloton and E. K. Bayley elected Sheriffs of London.
26. The Sultan deposed Ismael Pasha, Viceroy of Egypt, and nominated his son Tewfik to succeed him.

July 1. Public Health (Interments) Bill read a second time in the Lords.
-. The Council of India resolved to abolish the India Museum.
3. French Senate resolved to return to Paris.
4. Total defeat of the Zulus by the British troops under Lord Chelmsford at Ulundi.
-. Funeral of Lord Lawrence in Westminster Abbey.
8. Irish University Bill read a second time in the Lords.
10. Public Health (Interments) Bill carried in the Lords by 117 to 69.
—. Scene in the House of Commons, certain Irish members objecting to the Speaker's conduct in ordering private notes to be taken of the debates,
11. Remains of Prince Louis Napoleon landed at Woolwich.
12. Funeral of Prince Louis Napoleon at Chiselhurst, attended by the Queen, the Prince and Princess of Wales, and the Dukes of Edinburgh, Connaught, and Cambridge.
15. Prince Alexander of Battenburg invested by the Sultan as Prince of Bulgaria.
21. The Coast Chiefs of Zululand formally submitted to Sir Garnet Wolseley.
25. Consecration of Dr. W. Walsham How as Bishop of Bedford and Suffragan for East London at St. Paul's Cathedral.
31. The Education Bill of M. Jules Ferry shelved for the time by the decision of the Committee of the Senate by 6 to 2 to report in favour of its rejection.

Aug. 2. The French Chambers sat for the last time at Versailles.
4. The thanks of both Houses of Parliament voted to Lord Lytton and the army in Afghanistan.
6. Banquet to Her Majesty's Ministers at the Mansion House.
8. Great fire at Serajevo; 10,000 persons rendered homeless.
-. Close of the Newman Hall divorce suit, with a verdict for Mr. Hall.
9. Meeting of the Emperors of Austria and Germany at Gastein.
14. Mr. Grissell committed to Newgate for evading the Speaker's Warrant to appear at the Bar of the House of Commons.
—. Resignation of Count Andrassy.
15. Parliament prorogued by Commission.
19. First stone of the new Eddystone Lighthouse laid by the Duke of Edinburgh, in the presence of the Prince of Wales.
20. Forty-ninth annual meeting of the British Association opened at Sheffield, with Professor G. J. Allman, President.
25. Count Andrassy tendered his resignation to the Emperor at Vienna.
26. Lord Chelmsford arrived at Plymouth, on his return from Africa,

Aug. 28. Cetewayo captured on the north-east of Zululand.
Sept. 2. Sir Garnet Wolseley addressed the Zulu Chiefs, and stated his plans for the future government of the country.
3. Sir Garnet Wolseley announced to the Home Government the complete termination of military operations in Zululand.
-. Revolt of Heratee regiments at Cabul.
4. Massacre of Sir L. Cavagnari and the members of the British Mission at Cabul.
15. The Princes Albert Victor and George of Wales commenced their cruise in H.M.S. "Bacchante."
20. Yakoob Khan arrived in the British camp at Cabul.
—. Sir F. W. Truscott elected Lord Mayor of London.
29. The English troops finally left Zululand.
Oct. 1. The Social Science Congress opened at Manchester by an address from Bishop Fraser, its President.
2. The 19th Church Congress opened at Swansea, with the Bishop of St. David's as its President.
12. The English troops, under General Roberts, occupied Cabul.
14. Jellalabad occupied by General Gough's brigade.
15. Great floods in Spain.
16. Explosion in the Bala Hissar at Cabul.
17. Sir Garnet Wolseley reported the complete withdrawal of English troops from Zulu territory.
30. Opening of the newly-elected German Parliament, with a large majority for Prince Bismarck's policy.
28. Proclamation by the Indian Government at Cabul, announcing the abdication of Yakoob Khan, and the assumption of authority by the Viceroy.
Nov. 2. Opening of a new building at St. Bartholomew's Hospital by the Prince of Wales.

NECROLOGICAL TABLE.

OF DISTINGUISHED AND NOTABLE PERSONS WHO DIED BETWEEN NOVEMBER, 1878, AND NOVEMBER, 1879.

1878.		Age
Nov.	3. BRODRIP, Frances Freeling, authoress, only surviving child of Thomas Hood; at Clevedon	48
	4. COCKERELL, Frederick Pepys, architect; at Paris	45
	6. PHELPS, Samuel, actor; at Epping	74
	–. CALCOTT, William, violinist and composer	78
	–. EVANS, Alfred Bowen, D.D., Rector of St. Mary-le-Strand; at Gloucester Crescent	62
	–. CLARK, William George, M.A., Senior Fellow of Trinity College, and late Public Orator at Cambridge; at York	57
	15. COOPER, William Ricketts, F.R.A.S., founder of the Society of Biblical Archæology; at Ventnor	35
	24. QUIN, Frederick Foster, M.D., physician; at Queen Anne's Mansions	79
	30. LEWES, George Henry, author, founder, and first editor of the "Fortnightly Review"	61
Dec.	1. TAIT, Catherine, wife of the Archbishop of Canterbury; at Edinburgh	58
	4. GYE, Frederick, Director of the Royal Italian Opera, Covent Garden; at Dytchley	68
	5. WHYTE-MELVILLE, G. J., novelist; at Cirencester	58
	19. NASH, Joseph, water-colour painter; at Bayswater	70
	24. ANDERSON, Lucy, pianist, teacher of Queen Victoria and her children	82
	29. GROTE, Harriett, widow of the Historian of Greece, authoress; at Shere	86
1879.		
Jan.	8. ESPARTERO, Don Baldomero, Marshal; at Madrid	87
	13. PRINCE HENRY of the Netherlands, younger brother of the King of Holland; at Luxembourg	58
	15. WARD, Edward Matthew, R.A., painter; commited suicide while suffering from temporary insanity; at Windsor	63
	16. SOPWITH, Thomas, geologist; at Westminster	75
	—. HEATH, John Benjamin, Baron of the Italian Kingdom; at Russell Square	88
	28. MCNEILE, Hugh, D.D., late Dean of Ripon; at Bournemouth	84
Feb.	1. APPLETON, Dr. E. C., editor of the "Academy;" at New York	37
	2. DANA, Richard Henry, poet; at Boston, United States, of America	91
	3. BETHUNE, Right Rev. A. N., D.D., Bishop of Toronto; at Toronto	78
	7. NEATE, Charles, Senior Fellow of Oriel, formerly M.P. for Oxford City, and Professor of Political Economy; at Norham Manor	72
	16. BREWER, Rev. John Sherren, M.A., editor of ancient Records, preacher at the Rolls Chapel; at Toppesfield	68
	20. PARRY, John, vocalist and entertainer; at East Moulsey	69
	21. SHERE ALI, Ameer of Cabul; at Masar-i-Shariff	
	—. FOSTER, P. Le Nève, M.A., Secretary of the Society of Arts; at Wandsworth	69
	22. NEWCASTLE, Duke of, formerly M.P. for Newark; at St. James's	45

		Age.
Feb.	23. Von Roon, Albrecht, Field Marshal; at Berlin	76
	27. Bullock, Rev. W. H., Prebendary of St. Paul's and Secretary of S.P.G.; at Mentone	
March	3. Howitt, William, author; at Rome	84
	4. Clifford, Professor, mathematician; at Madeira	34
	7. Burritt, Elihu, "the learned blacksmith;" at New York	68
	24. Tyrrell, Right Rev. William, first Bishop of Newcastle, Australia; at Newcastle, Australia	72
	31. Patterson-Bonaparte, Elizabeth, widow of Jerome Bonaparte; at Baltimore, United States of America	94
April	8. Panizzi, Sir Antonio, K.C.B., Principal Librarian of the British Museum, 1856-66; at Bloomsbury Square	81
	9. Richter, Ernest Frederick; composer and theorist; at Leipzig	77
	11. Villemessant, M. de, director of the Parisian *Figaro*; at Monte Carlo	57
	21. Longman, Richard, publisher; at Waterloo Place	71
	23. Roxburghe, Duke of; at Goa	62
May	4. Froude, William, LL.D., F.R.S., naval constructor; at Cape Town	68
	5. Butt, Isaac, Q.C., M.P. for Limerick, leader of the Home Rule party; at Dundrum, Dublin	67
	6. Fisher, Ven. Edward Henry, Archdeacon of Southwark; at Monk's Eleigh	44
	10. Crawshay, Robert Thompson, ironmaster; at Cheltenham	63
	11. Gobat, Right Rev. Samuel, D.D., Anglican Bishop of Jerusalem; at Jerusalem	80
	23. Grant, James, editor of the *Morning Advertiser*, 1850-70; at Cornwall Road, W.	77
	24. Garrison, William Lloyd, advocate of the emancipation of slaves; at New York	75
	31. Von Schrandolph, Johann, historical painter; at Munich	71
June	1. Louis Napoleon, ex-Prince Imperial of France; in Zululand	23
	3. De Rothschild, Lionel, Baron, financier; at Piccadilly	71
	— Havergal, Frances Ridley; at Swansea	42
	7. Fox, Tilbury, M.D., physician, authority on skin diseases; at Paris	43
	10. Beadon, Rev. Frederick, M.A., Canon of Wells; at North Stoneham	101
	25. Cooke, Sir William Fothergill, electrician; at Farnham	73
	27. Lawrence, Lord, G.C.B., G.C.S.I., Governor-General of India, 1863–68, and Chairman of the first School Board for London; at Kensington	68
July	5. Frances Countess Waldegrave, daughter of John Braham; at Carlton Gardens	58
	6. Smart, Henry, organist and musical composer; at King Henry's Road, N.W.	66
	8. Duvernois, Clement, journalist; at Paris	43
Aug.	3. Severn, Joseph, British Consul at Rome, 1861-72, the friend of Keats; at Rome	
	5. Buck, Zechariah, Mus. Doc., for 56 years organist of Norwich Cathedral; at Newport, Essex	80
	8. Fichte, Immanuel Hermann, philosopher; in Germany	82
	13. Burke, W. M., M.D., Registrar-General for Ireland; at Dublin	60
	17. Bloomfield, Lord, G.C.B., formerly English Ambassador to Berlin and Vienna; at Newport, Tipperary	76

		Age
Aug.	18. DELEPIERRE, J. O., author, Belgian Consul in London; at Hamilton Terrace	78
	20. SHAW-LEFEVRE, Sir John, K.C.B., Clerk of the Parliaments, &c.; at Brighton	82
	22. GORDON, Lord, Right Hon. Edward Strathearn, Lord of Appeal in Ordinary; at Brussels	65
	27. HILL, Sir Rowland, K.C.B., originator of the Penny Postage; at Hampstead	83
	30. LONGMAN, Thomas, publisher, last of the original partners in his firm; at Farnborough Hill	74
Sept.	4. BLORE, Edward, D.C.L., F.S.A., architect; at 4, Manchester Square	89
	6. TAYLOR, Baron, traveller and author; at Paris	90
	7. DE NOE, AMEDEE, Comte, caricaturist ("Cham"); at Paris	60
	11. HODGSON, Kirkman, director of the Bank of England, formerly M.P. for Bristol; at Ashgrove	65
	12. HEISE, Paul, composer, novelist, and poet; at Copenhagen	49
	14. HOLT, Thomas Littleton, journalist, a chief agent in securing the abolition of the newspaper duty and the repeal of the advertisement duty; at Hendon	85
	17. LE DUC, Viollet, architect and author; at Lausanne	65
	22. POOLE, Paul Falconer, R.A., artist; at Hampstead	73
	26. ROWAN, Sir William, G.C.B., Field Marshal; at Bath	90
	29. MILLS, Rev. Thomas, chaplain in ordinary to George III, George IV, William IV, and Queen Victoria; at Stutton	87
Oct.	2. YORKE, Hon. Grantham Munton, D.D., Dean of Worcester; at Worcester	69
	4. SOLOVIEFF, Sergius, historian; at Moscow	59
	6. CLEASBY, Right Hon. Sir Anthony, judge of Exchequer Division from 1868-78; at Brecon	75
	7. CLANWILLIAM, Earl of, English Ambassador at Berlin 1823-27; at Belgrave Square	84
	13. CAREY, Henry Charles, political economist and publisher; at Philadelphia	83
	14. ECKERT, Karl, composer and conductor at the opera; at Berlin	59
	17. MIERS, John, F.R.S., botanist	90
	20. VON BULOW, First Secretary in the German Foreign; at Berlin	64
	— CHAPMAN, Right Rev. James, D.D., Bishop of Colombo 1845-61; at Wootton Courtney	79
	22. KINDERSLEY, Right Hon. Sir Richard Torin, Vice-Chancellor in the Court of Chancery 1851-66; at Dorchester	86
	— JEENS, Charles Henry, steel engraver	52
	23. ASHWELL, Rev. Arthur Rawdon, M.A., canon and treasurer of Chichester Cathedral, editor of the "Church Quarterly Review;" at Chichester	54
	29. BLACKWOOD, John, publisher and editor of "Blackwood's Magazine;" at Edinburgh.	60
	30. BUCKSTONE, J. B., actor; at Lower Sydenham	77
Nov.	1. GRUNEISEN, C. L., journalist, musical critic; at Surrey Street, Strand	72

NOTE.—The above table contains the names of 95 distinguished persons, of whom 24 died at the age of 80 or more; six were over 90; and one over 100.

INDEX

TO

'THE BRITISH ALMANAC' & 'COMPANION TO THE ALMANAC.'

(The figures in parentheses refer to the pages of the 'BRITISH ALMANAC,' *and those not so marked to the separately numbered pages of the* 'COMPANION TO THE ALMANAC.')

	PAGE
Abstracts of Acts of Parliament	232–250
,, Parliamentary and other Official Documents	251–279
Agriculture, statistics of	266–270
Ambassadors, foreign, in England	(93)
Architecture and Public Works	152–170
Army Agents	(71)
Army, General Officers of, British	(68)
,, ,, ,, Indian	(70)
Army and Navy, Statutes relating to	233
Bank of England, Directors of	(81)
,, ,, transfer days at	(13)
Banks and Bankers in London	(81)
Bishops of Church of England	(57)
,, ,, Ireland	(57)
,, ,, Scotland	(57)
,, ,, in Colonies	(58)
Calendar for 1880	(14–37)
Cambridge University	(59)
Chronicle of Events and Occurrences, 1878–79	280–284
Chronometers, The Rating of. By C. S. Murray	106–116
Church (The), Statutes regarding	232
Circuits of the Judges	(77)
Colonial Governors	(92)
Commons, House of	(45)
Commerce and Navigation, Statistics of	259–265
Corporation of London	(77)
Correspondence of Eras with 1880	(3)
County Courts in England and Wales	(73)
Courts of Law in England	(73)
Crime, Pauperism, and Accidents, Statistics of	273–275
Currency, Statistics of	251–258
Cyprus. By J. R. Royle	24–37
Deaf and Dumb, Education of the. By W. E. A. Axon	88–105
Dublin University	(66)
Durham University	(61)
Eclipses in 1880	(11)
Education, Statutes relating to	232
Education, Science, and Art, Statistics of	276–277
Emigration, Statistics of	277
Exhibitions in or near London	(95)
,, of Pictures in 1879	171–182
Finance and Taxation Statistics of	251–258
,, Statutes relating to	234–236
Heliograph, The. By H. Baden Pritchard	82–87
High Water at the London Docks	(6)
,, Out ports	(5)
Holidays at Public Offices	(13)
House of Commons	(45)
,, Lords	(40)
Illuminated Discs of Venus and Mars	(11)
Inns of Court	(76)
Insurance Companies	(83)
Irish Bishops	(57)
Irish Lords Lieutenant	(53)
,, Universities	(66)
Law and Justice, Statutes relating to	236–241
,, ,, Statistics relating to	273–275
Learned Societies and Institutions	(89)
Legislation of 1879	223–231
Licences and Taxes	(84)
Local Government, Statutes relating to	241–248
London Cab Fares	(88)
,, Corporation of	(77)
,, Daily Newspapers	(88)
,, The Progress of. By Charles Mackeson	117–137
,, School Board (The)	138–151
,, University	(60)
Lords Lieutenant, England and Wales	(52)
,, Ireland	(53)
,, Scotland	(52)
Metropolitan Philanthropy in 1879	217–222
Ministry, The	(39)
Mint, The. By G. Dodd	5–23
Miscellaneous Statistics	279
Miscellaneous Statutes	248–250
Moonlight, Table of Duration of	(10)
Music (The) of the Year 1879	208–216
Navy, Flag Officers	(71)
,, Agents	(71)
Necrological Table (1878–9)	285–287
Notes for the Year	(11)
Oxford University	(58)
Pauperism, Statistics of	273–275
Population, Statistics of	271–272
Post Office, Statistics of	278
,, ,, Information relating to	(86–88)
Privy Council, Members of	(56)
Quarter Sessions in 1880	(12)
Royal Family, Members of	(38)
,, Households	(38)
Science of the Year, by J. F. Iselin, M.A.	183–207
Scotland, Established Church of	(58)
,, Episcopal ,, ,,	(57)
,, Lords Lieutenant and Sheriffs of	(52)
,, Universities and Colleges	(65)
South Africa. By John Crowdy	59–81
Sovereigns and Governors of Countries	(92)
Sun, Table of Rising and Setting	(2)
Taxes and Licences	(84)
Temperance Refreshment House Movement. By J. J. Manley	38–58
Terms in 1880	(13)
Trade and Agriculture, Statistics of	266–270
Transfer days at Bank	(13)
Wales, University College of	(61)

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32	3	5	1	3	13	9	4	9	0	6	0	8
34	3	8	4	3	17	3	4	13	1	6	6	0
36	3	11	11	4	1	0	4	17	5	6	11	8
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Persons desiring to surrender their Assurances may receive their value in money, or in lieu thereof, may obtain a new Policy *without further payment of Premium*.

The Directors are ready to receive proposals for Assurances on any contingency involving payment of a sum at death.

Fire Department.

This Company undertakes the Assurance of almost every species of Property in the United Kingdom, at Rates of Premium and upon principles which will be found quite as advantageous to the interest of the Assured as those offered by any other Office. The Directors can confidently refer to the well-known character of the Company for liberality and promptitude in the discharge of claims made upon it during the many years it has been established. *No charge made for Policy Stamps.*

Renewals should be paid within fifteen days after the respective Quarter-days when they become due.

Losses occasioned by *Lightning* will be paid. The *Policies* of the *Company* extend to cover *Losses* occasioned by the *Explosion of Gas.*

The Company is ready to receive applications for agencies in those Towns and Districts in which it is not at present represented. Application to be made to the Secretary.

All Fire Assurances are now exempt from the payment of Government Duty.

Tables of Rates, Forms of Proposal, and any information needful to effect Life or Fire Assurances, may be obtained on application to the Office, No. 92, Cheapside, London, or to any of the Company's Agents.

THE

Clergy Mutual Assurance Society.

ESTABLISHED IN 1829.

OFFICES—1 & 2, BROAD SANCTUARY, WESTMINSTER.

Patrons.

HIS GRACE THE ARCHBISHOP OF CANTERBURY.
HIS GRACE THE ARCHBISHOP OF YORK.

President.

THE RIGHT HON. AND RIGHT REV. THE LORD BISHOP OF LONDON.

Vice-President.

CHARLES SUMNER, ESQ., M.A.

Trustees.

HIS GRACE THE ARCHBISHOP OF CANTERBURY.
HIS GRACE THE ARCHBISHOP OF DUBLIN.
THE RIGHT REV. THE LORD BISHOP OF WINCHESTER.
THE ARCHDEACON OF MAIDSTONE.

Treasurers.

HUGH LINDSAY ANTROBUS, ESQ. THE ARCHDEACON OF WESTMINSTER.

Directors.

CHAIRMAN—THE ARCHDEACON OF WESTMINSTER.
DEPUTY-CHAIRMAN—ROBERT FEW, ESQ.

HUGH LINDSAY ANTROBUS, ESQ.
CHARLES JOHN BAKER, ESQ.
THE ARCHDEACON OF BATH.
REV. CANON BLOMFIELD, M.A.
THE DEAN OF BRISTOL.
THE ARCHDEACON OF BUCKINGHAM.
REV. J. LOVETT CAMERON, M.A.
REV. C. B. DALTON, M.A.
REV. W. H. DICKINSON, M.A.
THE HON. EDWARD W. DOUGLAS.
REV. GEORGE ELLER, M.A.
REV. CANON ELLISON, M.A.
HON. & REV. CANON GREY, M.A.
REV. CHARLES M. HARVEY, M.A.
REV. W. GILSON HUMPHRY, B.D.
THE ARCHDEACON OF LONDON.
REV. CANON LONSDALE, M.A.
THE ARCHDEACON OF MAIDSTONE.
THE DEAN OF MANCHESTER.
REV. CHARLES MARSHALL, M.A.
REV. CANON MILLER, D.D.
REV. J. M. BURN-MURDOCH, M.A.
WILLIAM RIVINGTON, ESQ.
REV. CANON STONE, M.A.
W. H. STONE, ESQ., M.D.
JOHN CHARLES THYNNE, ESQ., M.A.
REV. HENRY WACE, M.A.
REV. CANON WILLIAMS, M.A.

Counsel.—THOMAS BOURDILLON, ESQ., M.A., Stone Buildings, Lincoln's Inn.
Solicitors.—MESSRS. LEE, BOLTON, and LEE, No. 2, Broad Sanctuary, Westminster.
Auditors.—CHARLES BARBER, ESQ. GEORGE T. BIDDULPH, ESQ. ROBERT J. LODGE, ESQ. REV. ALEXANDER WILSON, M.A.
Bankers.—MESSRS. COUTTS and CO. *Consulting Actuary.*—FREDERICK HENDRIKS, ESQ.
Physician.—DR. STONE, 14, Dean's Yard. *Actuary.*—STEWART HELDER, ESQ.
Secretary.—MATTHEW HODGSON, ESQ.

Total Funds .. .. **£2,610,167.**
Total Annual Income .. .. **£306,140.**

NO AGENTS EMPLOYED, AND NO COMMISSION PAID.

Reduced Premiums.—Assurances may be effected upon payment of four-fifths of the rates chargeable according to the Society's Table, subject to *certain conditions* fully set forth and explained in the Prospectus.

Claims.—The total amount of Claims paid upon death from the commencement of the Society to 1st June, 1879, was **£1,733,490.**

Bonus.—The whole available Bonus is the sole property of Life Assurers; no part whatever is taken from it to be shared amongst Proprietors. At the end of every fifth year, profits are equitably apportioned amongst existing Life Assurances. By means of Bonus, many of the earlier Life Assurances have been relieved altogether from the payment of Annual Premiums, and additions in almost every case have been made to the sums Assured; £343,140 was divided amongst Life Assurances at the declaration of Bonus on 1st June 1876. Next Bonus due 1st June, 1881.

Assurers have the privilege, at the time of making an Assurance, of selecting the mode in which the Bonus, whenever due, shall be applied, viz.—in an immediate Cash payment, or to the reduction of the Annual Premium, or to the increase of the Capital sum assured.

ASSURANCES may be effected on LIVES, SURVIVORSHIPS, &c., &c., as stated in the Society's Prospectus, to any amount not exceeding £7,500.

This Society is strictly confined to the Clergy of the Church of England and of the Episcopal Church of Scotland, their Wives and Families, and the near relations of themselves and Wives.

Prospectuses, Bonus Accounts, Forms of Proposal, &c., may be had at the Office, on personal application, or by letter.

1 & 2, *Broad Sanctuary, Westminster.*

Eagle Insurance Company,

(FOR LIVES ONLY,)

79, PALL MALL, LONDON, S.W.

(ESTABLISHED 1807.)

DIRECTORS.

GEORGE RUSSELL, Esq., *Chairman.*
CHARLES JELLICOE, Esq., F.R.G.S., *Deputy-Chairman.*
THOMAS ALLEN, Esq.
CHARLES BISCHOFF, Esq.
THOMAS BODDINGTON, Esq.
THE RIGHT HON. SIR JAMES FERGUSSON, Bart., K.C.M.G.
HON. THOS. F. FREMANTLE, M.P.
WILLIAM A. GUY, M.B., F.R.S.
RALPH LUDLOW LOPES, Esq.
SIR PHILIP ROSE, Bart.
HENRY PAULL, Esq.

ACTUARY AND SECRETARY.

GEORGE HUMPHREYS, Esq., M.A.

	£
Accumulated Funds	**3,066,214**

Also a Subscribed Capital of more than 1,500,000

Expenses of Management barely exceed Three per Cent. of the Gross Income.

Annual Reports, Prospectuses, and Forms, may be had, or will be sent, Post-free, on application at the Office, or to any of the Company's Agents.

THE ECONOMIC LIFE ASSURANCE SOCIETY,

No. 6, NEW BRIDGE STREET, BLACKFRIARS, LONDON, E.C.

ESTABLISHED 1823.

Directors.

HENRY BARNETT, Esq., *Chairman.*

The Rt. Hon. E. PLEYDELL BOUVERIE, *Deputy-Chairman.*

CHARLES ARTHUR BARCLAY, Esq.
MICHAEL BIDDULPH, Esq., M.P.
EDWARD CHARRINGTON, Esq.
JOHN HARMAN, Esq.
C. H. W. à COURT REPINGTON, Esq.
GEORGE KETTILBY RICKARDS, Esq.
ALFRED SARTORIS, Esq.
AUGUSTUS KEPPEL STEPHENSON, Esq.
Rt. Hon. LORD SUDELEY.
RICHARD TAYLOR, Esq.

Actuary.—RICHARD CHARLES FISHER, Esq.

ADVANTAGES OFFERED BY THE SOCIETY:—

The lowest rates of Premium on the Mutual System, for young and middle-aged lives, with early participation in Profits.

Number of Policies in Force	10,072
Sums Assured, with Bonus Additions	£9,706,466
Security—Accumulated Fund	3,375,359
Annual Income	370,957
Total Claims paid, with Bonus Additions	5,761,528
Total Bonuses declared to 1879 inclusive	3,507,415

Bonus.—The Society being on the mutual principle, the Assured share the whole of the Profits. Policies effected before 31st December of each year, receive a full year's Bonus for the year of entry.

DIVISION OF PROFITS, 1879.

Assets	£3,512,661
Liabilities	2,949,995
Surplus	£562,666

Prospectuses, Statement of Accounts, and full particulars may be obtained on application to

JOHN RALPH GRIMES, *Secretary.*

EQUITABLE
LIFE ASSURANCE SOCIETY.

OPPOSITE THE MANSION HOUSE, LONDON.

THE OLDEST LIFE OFFICE ON THE MUTUAL PRINCIPLE IN THE WORLD

Founded A.D. 1762.

Directors.

President—SIR FREDERICK POLLOCK, Bart.

JOHN ALLDIN MOORE, Esq.	*Vice-Presidents*	PATRICK COMRIE LECKIE, Esq.
JAMES SPICER, Esq.		JOHN THOMAS MOUNSEY, Esq.
EDWARD BULLOCK, Esq.		HALL BOKEBY PRICE, Esq.
JOHN CHARLES BURGOYNE, Esq.		RICHARD TWINING, Esq.
LORD GEORGE CAVENDISH, M.P.		JOHN WALTER, Esq., M.P.
WILLIAM EDWARDS, Esq.		JOHN KEMP WELCH, Esq.
SIR WALTER CHARLES JAMES, Bart.		

Ex-Directors.

WILLIAM CURREY, Esq.	GEORGE SCOVELL, Esq.
SAMUEL EDWARDS, Esq.	GEORGE FREDERICK WHITE, Esq.
SAMUEL HOARE, Esq.	

Medical Officer—WILLIAM MILLER ORD, M.D., F.R.C.P.

The Invested Capital of the **EQUITABLE** exceeds Four Millions and a quarter, being more than **twenty-nine times** its Renewal-Premium Income.

It has never allowed Commission or employed Agents, whereby more than **TWO MILLIONS** have been saved to the Assured.

JOHN WARE STEPHENSON, *Actuary*.

GUARDIAN

Fire and Life Assurance Company.

HEAD OFFICE:

11, LOMBARD STREET, LONDON, E.C.

Established 1821, *and Empowered by Special Acts of Parliament.*

Subscribed Capital	**£2,000,000**
Capital paid up	**1,000,000**
Total Invested Funds, upwards of	**2,956,000**
Total Income, nearly	**500,000**

DIRECTORS.

CHAIRMAN—RICHARD M. HARVEY, ESQ.

DEPUTY-CHAIRMAN—AUGUSTUS PREVOST, ESQ.

HENRY HULSE BERENS, ESQ.
HENRY BONHAM-CARTER, ESQ.
CHARLES WILLIAM CURTIS, ESQ.
CHARLES F. DEVAS, ESQ.
SIR WALTER R. FARQUHAR, BART.
ALBAN G. H. GIBBS, ESQ.
JAMES GOODSON, ESQ.
ARCHIBALD HAMILTON, ESQ.
THOMSON HANKEY, ESQ., M.P.
RIGHT HON. JOHN G. HUBBARD, M.P.
FREDERICK HALSEY JANSON, ESQ.
G. J. SHAW-LEFEVRE, ESQ., M.P.
BEAUMONT W. LUBBOCK, ESQ.
JOHN B. MARTIN, ESQ.
HENRY JOHN NORMAN, ESQ.
JOHN G. TALBOT, ESQ., M.P.
HENRY VIGNE, ESQ.

AUDITORS.

HERBERT G. H. NORMAN, ESQ.
CORNELIUS PAINE, ESQ.
HENRY SYKES THORNTON, ESQ.
NOEL WHITING, ESQ.

Manager of the Fire Department.—F. J. MARSDEN.

Actuary and Secretary.—T. G. C. BROWNE.

Physician.—J. RUSSELL REYNOLDS, Esq., M.D., F.R.S., 38, Grosvenor Street, W.

Solicitors.—Messrs. PARKIN, PAGDEN, & WOODHOUSE, Lincoln's Inn.

Surveyors.—JOSEPH JENNINGS, Esq., Langham Street, Cavendish Square. Messrs. DRIVER & Co. (Valuers for Landed Securities), 4, Whitehall.

Bankers.—Messrs. MARTIN & Co., 68, Lombard Street. Messrs. COUTTS & Co., 59, Strand.

LIFE DEPARTMENT.

The Quinquennial Valuation to Christmas, 1874, was made on the basis of the Institute of Actuaries' (H^M) Table of Mortality and 3 per cent. interest. The Valuation was strictly a net premium one, the whole of the loading being reserved.

The amount of profit divided among 2,875 participating policies, assuring £3,002,776, was £128,000, which was equivalent to a return of 29 per cent. of the premiums received during the five years.

The Valuation Report concludes as follows:—

"The Company's Accumulated Life Reserve Fund is about £21,000 more than is required by a Net Premium Valuation according to the Institute of Actuaries' (H^M) Table of Mortality. This is equalled by very few Offices indeed, and the additional Guarantee afforded by the paid-up capital of £1,000,000 places the Guardian in a position of singular financial strength."

Life Fund (1878) - - £1,416,000 | Life Income - - - £179,000

FIRE DEPARTMENT.

Insurances effected upon Property at Home and Abroad at Moderate Rates.

Fire Fund (1878) - - £393,000 | Fire Income - £272,000

HAND-IN-HAND
FIRE AND LIFE INSURANCE SOCIETY,
NEW BRIDGE STREET, BLACKFRIARS, LONDON, E.C.

Instituted in 1696.—*Extended to Life Insurance*, 1836.

DIRECTORS.

The Hon. LIONEL ASHLEY.
T. PALMER CHAPMAN, Esq.
MAJOR H. F. C. CUST, M.P.
JOHN LETTSOM ELLIOT, Esq.
Vice-Admiral Sir LEOPOLD G. HEATH, K.C.B.
ANDREW JOHNSTON, Esq.
FREDERICK LOCKER, Esq.
T. FULLER MAITLAND, Esq.
ARTHUR SPERLING, Esq.
JAMES SYDNEY STOPFORD, Esq.
THOMAS TURNER, Esq.
W. ESDAILE WINTER, Esq.

AUDITORS.

J. LETTSOM ELLIOT, Esq.
CHARLES R. GURNEY HOARE, Esq. | T. A. FULLER MAITLAND, Esq.

Bankers—Messrs. GOSLINGS & SHARPE, 19, Fleet Street.

Physician—THOMAS K. CHAMBERS, M.D.

Solicitors—Messrs. NICHOLL, MANISTY, & CO. 8, Howard Street, Strand.

Secretary—BENJAMIN BLENKINSOP, Esq.

Actuary—JAMES TERRY, Esq.

The oldest Insurance Office in the World.

The only Mutual Office in the Kingdom for both Fire and Life.

There being **no Shareholders, all Profits are divided yearly amongst the Insured.**

BONUS RETURNS.

LIFE—1st Series	70	per Cent. per Annum.
2nd Series (according to the age of the Policy) ...	60 to 70	
3rd Series do. do. ...	45	
FIRE—Annual Policies of Two Years' standing, with certain exceptions	25	

No Policy Holder is subject to any Personal Liability.
The Directors are **willing to appoint as Agents persons of good position and character.**

31*st DECEMBER*, 1878.

ASSETS.

General Accumulated Fund	£1,613,033
Life Assurance Fund	199,773
	£1,812,806

LIABILITIES.

Net Liability under Life Assurance and Annuity transactions, including abatements at existing rates	£1,409,138
Amount of Fire Premiums in hand, on account of unexpired terms of Annual and Septennial Insurances ...	24,703
Amount of Profits in hand, on account of unexpired Fire Policies	9,651
Balance (being surplus)...	369,314
	£1,812,806

The ACCOUNTS and STATEMENTS as deposited with the Board of Trade, as well as Prospectuses and Forms of Proposal, may be had of any of the Society's Agents, or on application at the Head Office.

BENJAMIN BLENKINSOP, *Secretary*.

The Liverpool and London and Globe INSURANCE COMPANY.

ESTABLISHED 1836.

OFFICES:—1, DALE STREET, LIVERPOOL;
CORNHILL, AND CHARING CROSS, LONDON.

Empowered specially by Parliament.

FIRE. LIFE. ANNUITIES.

Trustees of Company.

Trustees Liverpool—T. BROCKLEBANK, Esq., J. HUBBACK, Esq., J. A. TOBIN, Esq., Liverpool.

Trustees London—Sir CHARLES NICHOLSON, Bart., D.C.L., WM. MACNAUGHTAN, Esq., London.

Trustees of Globe Million Fund.

Sir CHARLES NICHOLSON, Bart., D.C.L., WM. NEWMARCH, Esq., F.R.S., JOHN WILLIAM ROBINS, Esq., Sir HENRY W. TYLER, Capt. R.E., GEORGE DUNBAR WHATMAN, Esq.

DIRECTORS.

LIVERPOOL BOARD.—OFFICE: No. 1, DALE STREET.

Chairman—H. B. GILMOUR, Esq.

Deputy Chairmen—A. CASTELLAIN, Esq., and G. H. LOXDALE, Esq.

CHAS. T. BOWRING, Esq.	ARTHUR P. FLETCHER, Esq.	GEO. MELLY, Esq.
THOS. BROCKLEBANK, Esq.	W. D. HOLT, Esq.	H. H. NICHOLSON, Esq.
C. J. CORBALLY, Esq.	J. HUBBACK, Esq.	J. ROME, Esq.
A. FLETCHER, Esq.	H. LITTLEDALE, Esq.	J. A. TOBIN, Esq.

Secretary of the Company—J. M. DOVE.

Assistant Secretary—A. DUNCAN.

Auditors—PETER S. BOULT, Esq., and E. EDWARDS, Esq.

Medical Referee—E. R. BICKERSTETH, Esq.

Bankers—BANK OF LIVERPOOL; UNION BANK OF LONDON.

Solicitors—Messrs. LACES, BIRD, NEWTON, and RICHARDSON.

LONDON BOARD.—OFFICES: 7, CORNHILL, AND CHARING CROSS.

Chairman—Sir CHAS. NICHOLSON, Bart., D.C.L.

Deputy-Chairman—W. MACNAUGHTAN, Esq.

W. PLEYDELL BOUVERIE, Esq.	Hon. SIDNEY CARR GLYN.
W. J. R. COTTON, Esq., Alderman, M.P.	R. W. GAUSSEN, Esq.
Hon. E. DRUMMOND.	G. D. WHATMAN, Esq.
FRED. FANNING, Esq.	

Actuary and Resident Secretary—AUGUSTUS HENDRIKS.

Fire Superintendent—T. SEPTIMUS MARKS.

Medical Referees—J. R. BENNETT, Esq., M.D., A. ANDERSON, Esq., F.R.C.S.

Consulting Surgeon—Sir JAMES PAGET, Bart., F.R.S.

Bankers—THE LONDON AND COUNTY BANK; Messrs. GLYN, MILLS, CURRIE, and Co.

Solicitors—Messrs. PALMER, BULL, and FRY.

Surveyors—E. N. CLIFTON, WM. THOMPSON.

REVENUE IN 1878.

Fire Premiums	£1,016,895
Life Premiums	£248,553

LIFE CLAIMS PAID THIRTY DAYS AFTER ADMISSION.

Agencies are established for effecting both Fire and Life Insurances, and facilitating the payment of Premiums in all parts of the World.

THE LONDON ASSURANCE.

Incorporated by Royal Charter, A.D. 1720.

FOR FIRE, LIFE, AND MARINE ASSURANCES.

No. 7, ROYAL EXCHANGE, LONDON, E.C.

BRANCH OFFICE—No. 16, CROSS ST., MANCHESTER.

MARK WILKS COLLET, Esq., *Governor.*
GEORGE L. M. GIBBS, Esq., *Sub-Governor.*
LEWIS ALEXANDER WALLACE, Esq., *Deputy-Governor.*

DIRECTORS.

H. GOUGH ARBUTHNOT, Esq.	ROBERT GILLESPIE, Esq.	CHARLES LYALL, Esq.
ROBERT BURN BLYTH, Esq.	HOWARD GILLIAT, Esq.	GREVILLE H. PALMER, Esq.
WILLIAM T. BRAND, Esq.	HENRY GOSCHEN, Esq.	Capt. R. W. PELLY, R.N.
EDWARD BUDD, Esq.	EDWIN GOWER, Esq.	WILLIAM RENNIE, Esq.
Major-General H. P. BURN.	A. C. GUTHRIE, Esq.	P. F. ROBERTSON, Esq.
GEORGE W. CAMPBELL, Esq.	ROBERT HENDERSON, Esq.	ROBERT RYRIE, Esq.
GEORGE B DEWHURST, Esq.	LOUIS HUTH, Esq.	DAVID P. SELLAR, Esq.
ROBERT B. DOBREE, Esq.	HENRY J. B. KENDALL, Esq.	Col. LEOPOLD SEYMOUR.

Secretary.
JOHN P. LAURENCE, Esq.

Underwriter.
JOHN ANTHONY RUCKER, Esq.

Actuary.
ARTHUR H. BAILEY, Esq.

Manager of the Fire Department.
WILLIAM H. HORE, Esq.

Medical Officers.
EDWARD CLAPTON, M.D., St. Thomas's Street, Southwark.
JOHN HARLEY, M.D., 39, Brook Street, Grosvenor Square.

Solicitors.
Messrs. JOHNSONS, UPTON, BUDD, & ATKEY, 20, Austin Friars.
Messrs. COLLYER-BRISTOW, WITHERS, & RUSSELL, 4, Bedford Row.

West End Agents.
Messrs. GRINDLAY & Co., 55, Parliament Street, S.W.

The Corporation has granted Fire, Life, and Marine Assurances, for more than a Century and a half; during that long period it has endeavoured to introduce into its practice all the real improvements that have from time to time been suggested, and to afford every facility for the transaction of business.

Of the Share Capital the sum of £448,275 has been paid up; the total Funds on the 31st December, 1878, exceeded Three Millions sterling.

Copie of the accounts pursuant to "The Life Assurance Companies' Act, 1870," can be had on application personally or by letter.

J. P. LAURENCE, *Secretary.*

NATIONAL
LIFE ASSURANCE SOCIETY,

FOR MUTUAL ASSURANCE,

2, KING WILLIAM STREET, LONDON, E.C.

Established 1830.

Directors.

President:
HENRY POLLOCK, Esq.

Vice-President:
Sir HENRY W. TYLER.

JOHN BLUNDELL, Esq.
GEORGE BURNAND, Esq.
HARRY CHUBB, Esq.
JOSEPH COLLING, Esq.
THOMAS CURTIS, Esq.
R. P. CAREW HUNT, Esq.
FREDERICK LOCK, Esq.
Lord WM. B. PHIPPS.
JOHN CHARLES SALT, Esq.
The Hon. GERALD C. TALBOT.

AUDITORS.
LEWIS C. BERGER, Esq.
WM. D. CHESTER, Esq.
JOHN CARLYON HUGHES, Esq.

MEDICAL OFFICERS.
HERBERT DAVIES, M.D.
J. A. KINGDON, Esq.
JOHN SCOTT, M.D.

BANKERS.—Messrs. ROBARTS, LUBBOCK, & CO.

SOLICITORS.
Messrs. WILDE, BERGER, MOORE & WILDE, London.
THOS. T. MECREDY, Esq, 28, Westmoreland Street, Dublin.
Messrs. BRUCE & KERR, 14, Frederick Street, Edinburgh.

Actuary—CHARLES ANSELL, Jun., Esq.

The Quinquennial Valuation made at the end of 1875 enabled the Directors to declare a **Reduction of Sixty per Cent.** upon the original premiums on all Policies in Class A for the five years ending with 1880. (This Class was closed on 31st December, 1870.)

In Class B Policies have a reduction of Premium for the whole term of Life, which in the cases of those effected in 1871, varies from 3½ per cent. to 24 per cent., according to the age of the Life Assured, at the last Valuation.

The Next Division of Profits will be made at the end of 1880.

VALUATION BALANCE SHEET, 31st DECEMBER, 1875.

Assurance Fund (accumulated solely from Premiums) ..	£675,883 3 8
Net Liability under Assurance and Annuity transactions..	337,366 16 0
Surplus available for future Bonus and Expenses	£338,516 7 8

All the Profits belong to the Assured, and (as regards Class B) are applied to the gradual reduction and ultimate extinction of their premiums, a result which may be expected to occur, on an average, **in about 20 years from the date of the Policy.**

Funds for the **Education of Children** and for their **Establishment in Life** may be provided on unusually favourable terms, on a new system lately introduced by this Society, based upon Tables of Mortality specially constructed for the purpose.

Loans granted upon Life Interests, Reversions, and other approved Security.

Applications are invited from Gentlemen of influence and position, who are willing to act as Agents in Districts where the Society is not represented.

Persons desiring to effect Assurances on Lives, in any part of the country, are invited to apply to—

HENRY JOHN PUCKLE, *Secretary.*

NORTH BRITISH AND MERCANTILE INSURANCE COMPANY.

ESTABLISHED IN 1809.

Incorporated by Royal Charter and Special Acts of Parliament.

CAPITAL TWO MILLIONS.

Accumulated Life Funds	**£2,852,566**
Fire Reserve Fund	**1,099,642**

DIRECTORS.

Chairman, John White Cater, Esq.
Deputy-Chairman, Chas. Morrison, Esq.
Richard Baring, Esq.
Richard Brandt, Esq.
A. H. Campbell, Esq.
Edward Cohen, Esq.
P. du Pré Grenfell, Esq.
Quintin Hogg, Esq.
Hon. Hugh M'Culloch.
J. S. Morgan, Esq.
Charles W. Mills, Esq.
George Garden Nicol, Esq.
John Sanderson, Esq.
Baron J. H. W. Schroder.
George Young, Esq.

MANAGER OF FIRE DEPARTMENT.

G. H. Burnett.

MANAGER OF LIFE DEPARTMENT.

Henry Cockburn.

SECRETARY.—F. W. Lance.

MEDICAL OFFICERS.

A. H. Hassall, M.D.; R. C. Cream, M.D.; Herman Weber, M.D.

SOLICITOR.—Sir W. R. Drake.

GENERAL MANAGER.

David Smith, F.R.S.E.

LIFE DEPARTMENT.

THE PRINCIPLES on which this Company was founded, and on which it continues to act, combine the system of Mutual Assurance with the safety of a large Protecting Capital and Accumulated Funds, and thus afford all the facilities and advantages which can prudently be offered by any Life Assurance Office. Under these principles the business of the Company continues rapidly to increase.

NINETY PER CENT. of the WHOLE PROFITS is divided among the Assurers on the Participating Scale.

THE PROFITS are divided every Five Years.

POLICIES INDISPUTABLE after Five Years.

ANNUITIES of all kinds are granted, and the rates fixed on the most favourable terms.

FIRE DEPARTMENT.

PROPERTY OF EVERY DESCRIPTION, at Home and Abroad, Insured at the most favourable rates.

The net premiums for 1878 amounted to £915,196.

Prospectuses and every information can be obtained at the

CHIEF OFFICES:—

LONDON: 61, Threadneedle Street, E.C.; WEST END OFFICE: 8, Waterloo Place, S.W.; EDINBURGH: 64 Princes Street.

PROVIDENT LIFE OFFICE,

FOUNDED 1806,

50, REGENT STREET, LONDON.

EXISTING ASSURANCES	**£6,023,350**
INVESTED FUNDS	**2,019,251**
ANNUAL INCOME	**270,525**
CLAIMS PAID	**6,055,100**
BONUSES DECLARED	**2,342,000**

HALF-CREDIT SYSTEM,

Applicable only to With-Bonus Policies for the whole Term of Life (TABLE A), *and to Lives not exceeding 60 years of age.*

UNDER this system, one-half the Premium only is payable during the first 5, 7, or 10 years, in the option of the Assured; the other half-Premium remains a charge against the Policy, bearing 5 per cent. interest, payable in advance.

The arrears of half-premium may be paid off at any time, or be deducted from the sum assured when the claim arises, or from the Office value in case of surrender.

This system offers the advantage of a low premium during the early years of life, and thus enables an Assurer to open a policy for a larger amount than could be obtained under the ordinary terms.

The large Bonuses declared by this Office may reasonably be expected (except upon Policies of a very recent date) to clear off any charge which may be due for these arrears of premium.

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Total Amount of Bonus Additions made to Policies	3,251,871	3	9
Amount of Profits divided for the Seven Years ending 20th August, 1875	535,216	16	0
Annual Income	286,533	19	7
Total Claims paid—Inclusive of Bonus Additions	7,893,697	1	8

*** Copies of the Accounts deposited with the Board of Trade, pursuant to "The Life Assurance Companies' Act, 1870," as well as of the Periodical Valuation Accounts, and every information may be obtained on application. H. W. PORTER, *Actuary*.

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